

THE MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—24TH YEAR.

SYDNEY, SATURDAY, MAY 8, 1937.

No. 19.

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MEDICAL GYNÆCOLOGY.¹

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THE term "medical" gynecology suggests that the subject is a subdivision of a larger one. It is a real subdivision, and the contrast implied is that there is also a surgical gynecology. This subdivision is one of recent growth, for surgical gynecology has attained its present comparative importance only in the last half century. The work of Lister, Lawson Tait and Spencer Wells established a new outlook and a new line of attack in a subject that is as old

as the sciences of medicine and surgery, of which it is a branch. For gynaecology, which may be defined as the study of the diseases peculiar to women, the diseases to which women are susceptible on account of their anatomical conformation, their sex functions and their reaction to their environment, has a history which dates from the earliest medical records. Treatment, however, was almost entirely non-operative. It was not till the abdomen had been opened in safety by Lister and the workers of his time that the surgical aspect of gynaecology assumed any considerable proportions. In the last half century the surgical treatment of gynaecological diseases has been developed at a tremendous rate, till at the present time the gynaecological wards of our general hospitals are almost entirely surgical. On this account the student of today is likely to develop the idea that gynaecology is purely a surgical subject. He associates gynaecological

¹Read at a meeting of the Tasmanian Branch of the British Medical Association on November 10, 1936.

treatment with surgical wards and surgical treatment. There can be no doubt that in certain groups of diseases and in selected cases operation is the quickest and surest, and, indeed, in some the only method of cure. But there is a great proportion of cases in which medical or non-operative measures will cure the patient or give her such an amount of relief that she will be content with the result. For it must not be forgotten that most women dread the thoughts of an operation, and to the great majority there is a definite mental trauma associated with operations. Unless operation results in a complete cure or in a very definite relief of symptoms, it is likely to do more harm than good to the patient's mental outlook. But if the patient feels that the operation is the only resort and that medical treatment has been given an unsuccessful trial, she is more likely to be satisfied, to have more confidence, and even to be less critical of the final result. Unfortunately there is a feeling abroad that women are operated on too frequently and without sufficient justification. This can be removed if proper attention is given to the medical aspect of gynaecology and patients are not "rushed" into operations.

Medical or non-operative gynaecology, then, aims at relieving the patient's symptoms by measures other than operation. This calls for a great deal of patience on the part of the practitioner, as well as for a sound knowledge of the pathology of the conditions he is dealing with.

Diagnosis.

The first essential in treatment is, of course, a correct diagnosis. This is based on a consideration of the history of the case, together with a thorough and careful physical examination. No gynaecological opinion can be sound unless the physical examination has been properly carried out. The ultimate aim of the treatment must be to relieve "what the patient is complaining of". This is what brings her to her doctor, and it is from this that she expects to be relieved. This is a point that is too frequently overlooked. For instance, a patient comes complaining of sacral backache. The back is not examined, but a pelvic examination is made and the uterus is found to be retroverted. An operation is advised, the uterus is replaced and a perfect surgical and anatomical result is obtained. But three months later the patient still has the same backache. On examination of the back definite tenderness is found over the sacro-iliac joint on one side. This, and not the retroversion, has been the whole cause of the trouble. A course of salicylates, liniment and an appropriate support give complete relief. The operation was unnecessary and could have been avoided by a careful physical examination. In all cases of backache, always look at the back.

Available Methods of Treatment.

Once we have arrived at a diagnosis and have determined that the condition to be treated is the cause of the patient's complaint, what measures are open to us for treatment? We have the resources

of the pharmacopœia for internal administration and external application; the alternatives of rest, posture, massage and controlled exercise; local mechanical applications in the form of heat, cold, douches, pessaries and medicated and mechanical tampons; electrical treatment by galvanic and faradic currents, ionization and diathermy; and X rays and radium. Let us briefly review them.

Rest.—Rest is one of our greatest allies. Hilton's classical work on "Rest and Pain" has directed the attention of the profession to its value. It is of great use in gynaecology, for one finds that many patients are suffering from over-work as a result of the heavy strain of managing a household and of doing their own house-work, including cooking and washing, only too often without any help. They drain their natural reserves of strength, they overdraw their account at Nature's bank and work on an overdraft, and as a result the monthly depression of menstruation soon becomes a burden and the tired mother and housewife becomes a gynaecological patient. A rest and a change, a building up of the patient's balance in Nature's bank and the storing up of a little reserve will work wonders in these cases. Beware of operating on these tired patients unless there are very definite pathological indications. Most of their aches and pains will disappear with a change to the mountains or seaside and a temporary respite from the daily household round of work and worry. Rest is, of course, the first essential in all inflammatory conditions and should never be omitted.

Posture and Exercise.—Posture and exercise prescribed for definite conditions of displacement of organs or relaxation of body tissues, combined with massage properly given under direction, will restore tone and improve the local and general conditions of patients who have neglected their exercise or who are debilitated.

Sea-Bathing.—Sea-bathing is an excellent tonic for many.

Diet.—Diet is an important means of treatment in conditions of obesity, constipation and excessive thinness. It is well worth while studying the diet of our patients; and a knowledge of relative food values, of the comparative digestibility of foods, and of the physiology of digestion is a very useful addition to our resources.

Heat and Cold.—Heat and cold may be applied to the genital tract externally or internally by means of bags, baths or douches, and by the actual cautery and diathermy. They give much comfort, relieve pain and congestion and stimulate the tissues to react favourably when injured by inflammation or when sluggish and depressed in their functions. Douches are of value in removing pathological products, cleansing the parts, and in applying heat or cold. They act mechanically by exerting pressure on the local tissues and promoting the absorption of exudates. For cleansing purposes they may be given with a syringe; but for proper mechanical effect they should be given with a proper douche

can, the patient being in the recumbent position, the hips elevated, a receptacle under her to receive the overflow, the nozzle inserted not more than two inches, the can not more than two feet above the patient, the fluid as hot as can be borne comfortably, and the time not less than fifteen minutes. Given thus by a nurse, or self-administered by an intelligent patient, douches are of great value when ordered with a definite purpose.

Medicated Pessaries and Tampons.—Medicated pessaries and tampons are of use for local application of drugs to the mucosa of the cervix, vagina and urethra.

Electrical Treatment.—Electrical treatment includes ionization, the use of galvanic and faradic currents and diathermy, or the development of heat in the tissues by the passage through them of a current of extremely high frequency. Of these, diathermy is becoming most extensively used.

Radium.—Radium has its own field of usefulness in the treatment of newgrowths, either innocent or malignant.

X Rays.—X rays are used either for local application to the surface, for example, the vulva, or for deep therapy in the pelvis in newgrowths, both innocent and malignant. It is a method of treatment requiring expert knowledge for its application and dosage.

Gynaecological Symptoms and their Treatment.

We shall now take the main symptoms in gynaecology and consider the treatment appropriate to each. The symptoms most commonly complained of are: (i) pain; (ii) disorders of menstruation, (a) amenorrhœa, (b) menorrhagia, (c) metrorrhagia, (d) dysmenorrhœa; (iii) discharge; (iv) dyspareunia; (v) sterility; (vi) pruritus; (vii) disorders of micturition.

Pain.

The first step must be to find the cause. When this can be definitely located, treat it. If it is due to diseased pelvic appendages, they should be removed. But in the great majority of cases pain is a symptom which can be relieved by medical treatment. Acute abdominal pain coming on suddenly with shock and vomiting, of course, suggests an abdominal disaster, such as acute peritonitis from an inflamed appendix or tube, internal hæmorrhage from a ruptured ectopic gestation or trauma, acute obstruction or one of the colics—lead, biliary, renal or tabetic. Each of these calls for its appropriate treatment, which is in most cases surgical. But acute salpingitis does not always require immediate operation. There is a school of surgical thought which advocates immediate operation for all cases of acute salpingitis as soon as it is diagnosed. But this is far too radical. Acute salpingitis is a condition which will in many cases respond to rest, hot douches and sedatives. A unilateral salpingitis following uterine sepsis in the post-abortive or puerperal state will frequently clear up altogether

on such treatment. A patient with acute bilateral salpingitis, which is most frequently gonorrhœal in origin, should be kept under observation and treated along the same lines. If after two or three days the condition is not settling down or showing signs of improvement, operation may be necessary. But in many cases the condition will settle down and will give no further trouble. I have seen several patients who have kept well and have become pregnant and borne a child without further trouble. But if such patients get attacks recurring at intervals, it is better to remove the tubes, for in such cases they are damaged beyond repair and are a constant focus of danger. It is wise, however, after the confinement of patients who have had gonorrhœa, to keep them in bed for three weeks, to avoid the occurrence of salpingitis.

Apart from these acute conditions, there are many causes of chronic abdominal and pelvic pain and backache that require treatment. Chronic pain in the lower part of the abdomen on one or both sides may be due to chronic appendicitis or chronic salpingitis. Here the lesion presents itself for detection and should be removed. But in many cases no obvious lesion is to be found beyond an indefinite pelvic sensitiveness and some sensitiveness over the caecum on the right and over the iliac colon or sigmoid on the left side. In these cases pain is generally due to constipation in a greater or less degree. Many women are constipated without recognizing the fact. A daily motion does not exclude constipation, as the patient may simply be expelling the lower end of a column of scybalous material. These patients respond rapidly to dietetic regulation, combined with an aperient iron and saline mixture, which both cleans the colon and improves the tone of its muscle. It is a good thing to order a regular hot douche once or twice a day in addition, followed by half an hour's rest in the recumbent position, for there is usually a degree of pelvic congestion associated with and arising out of chronic loading of the lower part of the bowel. Included in this category are many of the tired and overworked housewives previously alluded to, as well as girls and women who spend most of the day in shops, offices and factories, and who neglect the natural functions and also indulge in an unsuitable diet of copious hot tea, toast, buns and cakes.

Backache is a very common symptom, and one which calls for thorough examination of the back as well as the pelvis. The back should be exposed from the nape of the neck to the sacrum and the patient should be asked to point out the site of the pain; then the back should be carefully palpated for tenderness, and finally the effect of exercise and movement should be investigated. While many backaches are reflex and due to pelvic and intestinal disease, a large proportion are due to local causes. The sacro-iliac joints are often damaged after pregnancy and confinement, and may remain weak and tender. They also are liable to rheumatic infections and to osteoarthritis with bony changes, seen in X ray photographs. They have to support the

weight of the trunk and upper limbs and have to transmit it to the lower limbs, and therefore are under constant stress and strain. If the sacro-iliac joints are injured or diseased, definite tenderness will be found just medial to the postero-superior iliac spine. Mild cases will be cured by rest, salicylates and "A.B.C." liniment, but in more severe cases support and appropriate exercises are required. In these cases, which are more common than is generally supposed, the patients should be referred to an orthopaedic surgeon. Backache may be due also to fatigue of the lumbar muscle masses from faulty posture at work, and in debilitated persons. Another cause is a mild degree of spinal curvature, especially in adolescent girls. All these conditions are to be borne in mind before a decision is made that backache is due to a pelvic lesion. Remember that 25% (according to some authorities) of uterine retroversions are symptomless; and unless there is a history of infection or of parturition as a contributing cause to the retroversion, do not credit all backaches to pelvic causes until you have excluded local causes in the back.

Dysmenorrhœa.—Dysmenorrhœa is the term applied to pain occurring during menstruation. In the majority of women the menses should not be painful. Pain of such a degree as to interfere with work or pleasure may be described as dysmenorrhœa. In estimating the pain of which a patient complains, one must remember the individual peculiarities of patients. If a patient has to miss work and lose pay or lie up and forego her pleasures, we can assume that she has real pain. There are two factors involved in these cases: the peripheral stimulus and the receptors of the central nervous system. If the latter are unduly sensitive, the discomfort associated in many cases with menstruation is magnified unconsciously and is complained of as severe pain. In such cases menstruation has been painful from the first onset of the periods. Such patients need encouragement and an explanation of the normal happenings, together with mild sedatives and distraction in the form of an occupation or hobby which interests them. But, apart from these cases, dysmenorrhœa may be divided into two great groups: (i) Primary dysmenorrhœa, which is subdivided into: (a) vaginal type, due to undue tension in the vessels and substance of the endometrium; (b) obstructive type, which may be due to clotting of the menstrual fluid, to a curious condition known as membranous dysmenorrhœa, or to actual blockage of some portion of the genital tract with damming back of the menstrual fluid. (ii) Secondary dysmenorrhœa, which is an acquired symptom due to some acquired pelvic lesion, such as tubo-ovarian inflammation, peritonitis, fibroids, displacements or chronic infection of the uterus.

The first essential in treating a case of dysmenorrhœa is an accurate diagnosis, for the treatment will differ according to the cause.

In the primary vaginal group, when the pain is grinding, boring and continuous, situated in the mid-line of the abdomen and often radiating down

the thighs, the uterus may be found to be normal or it may be small and strongly anteverted, with a pinhole os. The pain commences two to three years after the onset of menstruation, at about seventeen or eighteen years of age. The first requisite is to attend to the general health: the bowels should be regulated with a tonic saline aperient and well opened just before the period; the diet should be ample and nourishing, and should not consist of hot tea and pastry; the patient should be encouraged to take plenty of exercise in the open air, such as surfing, tennis, riding or walking; a change of air is sometimes helpful; a tonic mixture taken regularly will improve the general body tone; and any dyspepsia should be corrected. When the period starts, the patient should rest in bed for the first day with a hot water bag; and sedatives, such as bromides in small doses, combined with phenacetin, antipyrin or aspirin, are given for a couple of days before the onset of the pain. Atropine in doses of 0.65 milligramme (one one-hundredth of a grain), given three times a day for three days before the period starts, gives relief in some cases. In others, benzyl benzoate in doses of 0.3 gramme (five grains), taken three times a day for ten days before the period is beneficial. For patients with an under-developed uterus organotherapy is useful, but no definite rule can be laid down either as to the preparation to be used or the dosage. To many, three to five grains of thyroid extract night and morning give relief, but watch for sleeplessness and nervousness developing in these cases. In other patients symptoms will be relieved by extract of *corpus luteum* or of whole ovary or of ovarian residue in five-grain doses, either alone or combined with thyroid extract.

If after thorough and systematic treatment on these lines for some months little relief has been obtained, dilatation of the cervix to number 10 Hegar dilator, together with a thorough curetting with a sharp curette to remove the endometrium, will frequently give complete relief, or the procedure may need to be repeated after some months. Hysterectomy is only very rarely indicated, and the ovaries should never be disturbed. Pregnancy practically always cures this condition. Alcohol and morphine should never be prescribed in these cases, for they may easily lead to addiction. The treatment of obstructive or spasmodic cases, when the pain is more of the nature of a colic with remissions and with the passage of clots, is to be along the same hygienic lines. If excessive bleeding and much clotting occur, styptics, such as ergot, hydrastis or hamamelis, either separately or in combination, are indicated. Cotarnine hydrochloride (stypticine), three-quarters of a grain, is useful. In other cases *Liquor Caulophylli et Pulsatillæ Compositus*, in drachm doses, or apiol (one grain in a capsule) will give complete relief. Rest and sedatives are also indicated. Here again, after unsuccessful trial of these measures, dilatation and curetting may be tried. In membranous dysmenorrhœa, if thorough and repeated curetting does not

give relief, hysterectomy (not oophorectomy) is indicated.

It is to be noted that in some of these cases success has been claimed for nasal treatment by application of the galvano-cautery or trichloroacetic acid after cocaineization of what are called "genital spots" in the nasal mucosa. These areas become engorged during menstruation, and nasal surgeons have told me of some very suggestive reactions that they have obtained by the cauterization of these areas before and during menstrual periods. But this is a matter requiring further investigation.

In obstructive cases due to maldevelopment or blockage of a portion of the genital tract, operation is indicated.

Secondary dysmenorrhœa is due, as has been indicated, to pelvic complications, and should be dealt with on appropriate lines. Diseased appendages should be removed. Fibroids should be treated by X rays or radium or should be removed; the relative values of these procedures will be discussed later. Displacements should be corrected and the general health improved.

Disturbances of Menstruation.

Disturbances of menstruation include the opposite conditions of absence or amenorrhœa, and excessive loss, either menorrhagia or metrorrhagia.

Amenorrhœa.—One must first recognize the cause of the absence of the flow. Amenorrhœa may be primary or secondary. In primary amenorrhœa the flow has never commenced; in the secondary type it has been established, but has ceased.

Primary amenorrhœa may be either developmental, due to absence of the ovaries (a most rare condition), to under-development of the uterus, this organ remaining infantile, or to concealment of the flow or cryptomenorrhœa due to a septum in the vagina. Treatment is futile when failure of development is responsible for the condition. Cryptomenorrhœa must be recognized and dealt with surgically by removing the obstruction.

Primary amenorrhœa arising from general causes may be due to delayed puberty, to anæmia, particularly chlorosis, or to tuberculosis, either general or local. In cases of delayed puberty, provided the girl is otherwise in good health, it is best to advise patience and to tell the mother not to worry. But if it is desired to prescribe, one may give potassium permanganate in pill form in doses of one or two grains three times a day for a week at monthly intervals, or apiol in capsules in doses of two to five minims night and morning, or ovarian extract in five-grain doses three times a day. If, however, the girl is obviously poorly developed and anæmic, have the blood examined and determine the type and degree of anæmia and prescribe suitable tonics, iron according to your habit, and improve the general hygiene. The amenorrhœa of tuberculosis will be regarded as part of the general condition and will be treated accordingly.

Secondary amenorrhœa, that is, when the flow has been established and has ceased, must always

be very carefully investigated. In all such cases pregnancy is to be thought of, especially if the courses have stopped suddenly. In the words of Dr. Giles:

From the age of puberty to that of the climacteric, and even later, whether the patient be single, betrothed, married, widowed, separated from her husband, divorced, rich or poor, and whatever her political opinions or religious persuasions, pregnancy must always be thought of as a possibility, especially where the amenorrhœa has suddenly followed a period of normal and undiminished menstruation, for it must be remembered that when amenorrhœa is the result of constitutional conditions, the periods have commonly become irregular and have progressively diminished in quantity before ceasing.

Amenorrhœa, then, is physiological during pregnancy and lactation and after the menopause, and needs no treatment. But the flow may cease from constitutional causes, such as wasting and debilitating conditions, nephritis, toxic conditions caused by chronic poisoning by lead, mercury, morphine or alcohol; it may cease because of ovarian deficiency caused by removal or destruction of both ovaries or because of superinvolution of the uterus after pregnancy. In each of these the treatment is that of the cause; the amenorrhœa is only a symptom. But if it is desired to try emmenagogues, the best is iron in one form or another. Others are apiol (two to five minims), ergot in small doses, manganese in the form of permanganate of potash (one to two grains in pills), aloes, and ovarian and thyroid extract, either together or separately. In any case, continuous administration over a long period is essential. These patients frequently show mental depression, which must be combated.

Menorrhagia.—Excessive loss during menstruation is menorrhagia, while loss between periods is metrorrhagia. These, of course, may shade off into one another till the loss is continuous throughout the month.

In general the causes of excessive bleeding may be given as: (a) disturbance of pregnancy, (b) retained products of conception, (c) inflammation, (d) displacements, (e) newgrowths, innocent or malignant.

If these are borne in mind, a careful consideration of the history and the physical examination should indicate the cause, and the treatment is that of the cause.

Thus in threatened abortion rest in bed, sedatives and antispasmodics are indicated. If there is a history of miscarriage and bleeding persists, the uterine cavity should be explored, provided that we exclude inflamed appendages first; for curetting in the presence of a salpingitis will often cause a severe "flare-up" in the pelvis.

Old retained products of conception must be removed.

Inflammation of the endometrium or of the uterine tubes will very frequently settle down with complete rest, copious hot douches, sedatives and attention to the bowels. If after a fair trial of these measures the condition persists or progresses, surgical interference is called for.

Displacements call for replacement and support by suitable pessaries or by operative measures.

Newgrowths may be innocent, such as fibromyomata or adenomyomata of the uterus or ovarian cysts or fibroids, or they may be malignant. The treatment of innocent tumours is a subject that is open to discussion. Ovarian newgrowths should be removed surgically as soon as diagnosed. Medical treatment is useless, and there is too much risk of the occurrence of malignant degeneration to wait and to try palliative measures. Uterine fibroids have been treated with radium and by deep X ray therapy with a good deal of success, but certain precautions are necessary. Radium or X rays in these cases act by destruction of the ovarian tissues and the induction of a premature menopause. The use of radium is absolutely contraindicated by the presence of any old inflammatory lesion in the pelvis, such as an old salpingitis or pelvic peritonitis. Radium causes a severe flare-up of such lesions. Degenerations and newgrowths of the appendages are also contraindications. In young women of the child-bearing age who are anxious to bear children, myomectomy is indicated. In older women hysterectomy should be performed. Uncomplicated fibroids in women approaching the menopause are the most favourable type for radium therapy.

In malignant disease of the uterus and appendages the proper treatment is operation, undertaken as soon and as thoroughly as possible. Patients with inoperable growths may be relieved of much of their sufferings by the use of radium or diathermy. Remember the aphorism: "All bleeding after the menopause is cancer till it is found otherwise." Remember also that bleeding after coitus is most frequently due to cancer. There is a type of menorrhagia which occurs in women approaching the menopause, in which one can find very little, if any, sign of local change, and the curette reveals a hard, fibrous type of endometrium—a condition often spoken of as a fibrotic or an arteriosclerotic uterus. In this condition a local application of radium, by the insertion of radium tubes into the uterus after dilatation of the cervix, will very frequently effect a complete cure in one or two applications. Here the dosage is sufficient only to destroy the endometrium, and it does not affect the ovaries if properly regulated. There is another type of menorrhagia which sometimes follows confinement and which is due to over-excitement of the thyroid and persistence of the increased metabolic rate of pregnancy. A couple of X ray applications to the thyroid gland will rapidly restore menstruation to normal.

The non-operative treatment of uterine hæmorrhage is by drugs, hot douches or plugging. Of drugs, the most potent are pituitary extract, given hypodermically, and ergot and its derivatives, given either hypodermically or by mouth. These may be assisted by extracts of hydrastis or hamamelis, either in liquid form or in pills. The liquid extracts of the last three in combination make a good styptic

mixture. The salts of calcium are often useful; calcium lactate in five-grain doses three times a day will often relieve the menorrhagia of growing girls, which seems to arise from disturbance of the balance of lime salts in the blood. Adrenaline is also useful, given hypodermically; it may also be given by local application. Stypticine (cotarnine hydrochloride) and styptol (cotarnine phthalate) do not cause uterine contractions, and have both a styptic and a sedative action. They sometimes succeed when ergot has failed. Tablets of three-quarters of a grain are prepared (Squire). Opium and hyoscyamus in combination are useful in cases of uterine hæmorrhage associated with spasm, as in threatened abortion or in the presence of a hæmorrhaging fibroid. Douches must be very hot—as hot as can be borne. They can often be given at a higher temperature if the sensitive vulva be smeared with "Vaseline" or lanoline.

Plugging the vagina may be resorted to as a temporary measure in cases of very severe hæmorrhage. The plugging needs to be carefully done, and the plugs should be inserted and packed round the cervix with the aid of a speculum. The vagina is filled, and tight abdominal and perineal binders are applied, if considered necessary. Do not douche or plug the vagina in threatened abortion.

Beware of giving drugs to pregnant women. Give something that is well known to be harmless, write in English, and, if you think fit, tell the patient that the drug will not interfere with pregnancy, for abortion arises spontaneously and by coincidence may be put down to your medicine.

Discharge.

Discharge is a symptom of common occurrence and one that gives rise to a great deal of discomfort. In investigating such a case, first see the discharge and then determine its source accurately with a speculum. Remember that a discharge may arise from any structure in the pelvis, from the bony walls to the vagina; but the common sites are the vagina and the uterus. Excess of the normal vaginal and cervical secretions may occur from very mild local irritation, giving rise to simple leucorrhœa. Removal of the cause cures the condition. Yellow discharges contain pus and are generally inflammatory in origin and are due to pyogenic organisms, such as the gonococcus, staphylococcus or *Bacillus coli communis*.

An examination of the discharge by slide and culture is necessary before a definite opinion can be given as to the underlying cause. Ascertain the cause and treat it. The treatment consists of douching and local applications. Douches are for cleanliness, and should contain antiseptics and solvents for mucus. Lysol, a drachm to the pint, tincture of iodine, two drachms to the pint, perchloride of mercury solution, 1 in 5,000, hydrogen peroxide solution, 1 in 8, are good for these purposes. For astringent douches, tannic or gallic acid solution, one drachm to a pint, or alum is best. Local applications to the vagina and cervix will vary

with the conditions. In acute inflammations, flavine in saturated solution for douching, for Sitz baths or for fomentis is bland, non-irritating and powerfully antiseptic. Silver salts, argyrol or protargol and silver nitrate, in varying strengths, from 1% for the urethra to 10% for the cervix, may be applied locally.

Foul-smelling and blood stained discharges suggest retained foreign bodies or malignant disease and call for careful examination. The treatment is that of the cause.

Trichomoniasis or trichomonas vaginitis is a well-recognized clinical entity. It is caused by the *Trichomonas vaginalis*, which probably originates in the bowel. The symptoms are purulent discharge, pain in the vagina, pruritus, intertrigo, extreme tenderness on examination and on micturition. Through a speculum the vaginal vault is seen to be injected and filled with yellow or greyish yellow, thin, purulent liquid, containing bubbles of gas. The vaginal walls often present a strawberry-like appearance. The disease does not appear to be transmissible to the male. Microscopically a hanging drop of pus in saline solution shows mobile organisms and moving pus cells. The organism is readily destroyed by douching and cannot be found after douching for two to three days. Although the exposed organism is easily killed, the vaginitis is very persistent. Ordinary treatment is ineffective and requires to be of long duration. Two requisites are essential for good results: the use of an acid antiseptic and application for prolonged periods. These two desiderata are obtained by using a vaginal cone soaked in 1% picric acid in a slowly dissolving vehicle. The cone should be placed high in the vault of the vagina on the patient's retiring to bed. A simple acid douche should be used once a day. There is a definite tendency for the disease to recur after the next period. Keep up treatment over three or four periods.

Pruritus.

Pruritus is a condition that may cause great misery and unhappiness, according to its extent and severity. Pruritus is only a symptom, and therefore its cause must be sought in every case. The one thing to remember is always to test the urine for sugar, for diabetes is a cause of pruritus, and sometimes the pruritus is a very early symptom. Inspect the vulva carefully for parasites, such as *pediculi pubis*, or for collections of secretion; remove them. Next look for discharge.

A chronic discharge from any source, for example, from gonorrhœa, from a cervical erosion, from the uterus, or in old women the discharge from a senile vaginitis may cause a severe pruritus. It is an early symptom of leucoplakia, but does not occur in kraurosis. It occurs in pregnancy as a mild toxæmia and responds to eliminative treatment. In children, threadworms and, in adults, hæmorrhoids may cause it. It also occurs in degenerative skin conditions in the vulva. We may find small red spots scattered about the vaginal orifice and

the *labia minora*. Careful search and touching each spot with pure carbolic acid will give relief. Much more important is *leucoplakia vulvæ*—a pre-cancerous condition affecting the labia and clitoris and perineum, but not the urethral orifice or vestibule or vaginal orifice. In *kraurosis vulvæ*, which occurs in elderly women and which affects only the vaginal and urethral orifices and vestibule, there is little itching. This is not pre-cancerous. Treatment is to be directed to the cause, if one can be found. In addition, one may use an antipruritic application or X rays, or the parts may be excised.

The antipruritics are many, and in no two cases may the same one succeed in giving relief. Calamine lotion with carbolic acid 1%, zinc ointment, ichthyol, *Liquor Carbonis Detergens*, silver nitrate 10%, and pyroligneous acid may all be tried with very varying success. Discharges must be got rid of by appropriate means, as they only keep the condition up, or, if the condition is cured, they cause it to recur.

Finally, excision of portion or the whole of the vulva may be necessary, and is the best treatment in leucoplakia of severe degree, if X rays fail to give relief.

There are a number of other symptoms which often occur in gynaecology, but I have already exceeded my time. In those that I have mentioned there is great scope for medical or non-operative measures. May I enter a plea for the exercise of patience and the trial of these measures whenever they are suitable, so that operative procedures may be confined to those conditions in which they will achieve their best results.

THE TREATMENT OF CHRONIC PEPTIC ULCER PRIOR TO SURGICAL INTERVENTION.¹

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THE treatment of chronic peptic ulcer demands consideration of both medical and surgical procedures.

The majority of ulcers may be healed by medical measures, provided the patients are treated early, thoroughly and systematically. Such a group will comprise those ulcers in which the history does not suggest lesions of long duration (under five years) and in which there is no evidence of complications; the motor function of the stomach must be good, with no excessive mechanical deformity and no history of profuse and recurrent hæmorrhage.

Taking the time limit for relapse as two and a half years, Dr. N. A. Neilson worked out statistics of cure under a medical régime relative to the age of the ulcer, with the results shown in Table I.

¹Read at a meeting of the staff of the New South Wales Community Hospital on December 2, 1936.

TABLE I.

Duration of Illness.	Patients Cured.	Patients Improved.	Total.
6 months	60.0	16.7	76.7
3 to 1 year	54.1	16.7	70.8
1 to 3 years	36.9	21.0	57.9
3 to 5 years	20.0	26.7	46.7
5 to 10 years	10.8	10.8	21.6
Over 10 years	5.3	17.6	22.9

Efficient medical treatment entails prolonged and tedious care; it starts with three to eight weeks in bed, and if the ulcer is to remain healed its possessor will have to alter materially his pre-ulcer habits in eating, drinking, smoking *et cetera*.

Experience has shown that a minimum period of three weeks of strict dieting is necessary for the healing even of small ulcers; and the more chronic ulcers require at least six to eight weeks. After this time the diet may be increased and the patient may be allowed to become ambulatory. Unfortunately, approximately 80% of those suffering from peptic ulcer are wage-earners who cannot afford the time and care that are so necessary for a medical cure. To prescribe prolonged medical treatment for a labouring man working for wages on a farm or in a factory is about as reasonable as advising a poor man with tuberculosis and a family to support to "go to the Blue Mountains and cease all work for two years".

It therefore follows that prolonged medical treatment is out of the question for a large majority of patients with peptic ulcer.

Unless an ulcer heals completely there is a constant danger of hæmorrhage (25%) and perforation (5%); these complications occur in about one-quarter to one-third of all cases treated by non-operative measures. It therefore follows that, whatever the line of medical treatment selected, it should be made sufficiently thorough and prolonged to effect a cure or to demonstrate the fact that the case should be placed in the surgical group. Otherwise, if symptoms recur, one is faced with the problem of deciding whether to repeat the medical procedure or to resort to surgery; and, moreover, unnecessary expense and loss of time are sustained. For this reason it is impossible to justify ambulatory measures, except temporarily, whilst studying a case or awaiting a favourable opportunity for more definite treatment. In other words, although ambulatory treatment may give abatement of symptoms, recurrence is the rule.

The main principles underlying medical treatment are as follows:

1. Complete bodily and mental rest. Many physicians forget that rest of the mind and of the nervous system is of as great importance as, and sometimes of greater importance than, mere bodily rest, and that disturbance in the psychic sphere may produce far more pronounced secretory and motor disturbance than even active exercise.

2. The administration of a non-irritating food which is easily broken down and rapidly evacuated

from the stomach, without inducing more than a minimal secretion of acid, and yet neutralizing as much hydrochloric acid as possible.

3. The administration of drugs to neutralize any residual free hydrochloric acid that may be present either during the day-time and, what is almost invariably neglected, throughout the night. For this purpose alkalis, incapable of inducing a secondary gastric secretion, should be employed.

4. The maintenance of an adequate nutrition by the patient. The diet must be adequate in quantity and must contain sufficient vitamins to prevent malnutrition.

It therefore follows that the above principles will demand a diet furnishing a sufficient calorie value (a patient "at rest" requires approximately 27 calories per kilogram and for a sedentary life 33 calories) but at the same time inducing a minimal secretion of acid. Further, soft foods which leave the stomach early and which irritate the surface of the ulcer neither mechanically nor chemically, will be preferable to those of the more solid varieties. We may recall that as medical students we were taught that the main function of the stomach was to produce liquefaction of the contained food; hence the substitution of a fluid diet for a solid one will reduce enormously the work required of the gastric musculature.

Proteins have a high power of absorbing acid and do not remain long in the stomach, but they tend to provoke a greater flow of gastric juice than do carbohydrates (compare meat and bread test meals). Theoretically, fats meet the requirements most fully. Hence a diet designed to produce a minimal secretion of gastric juice should be selected mainly from fat and carbohydrate foods.

For over a century milk has been the foundation of nearly every system of medical treatment. Some forty years ago the late I. P. Pavlov showed that milk owed its efficacy chiefly to the presence of contained fat (which is known to inhibit gastric secretion), aided by the associated protein which combines with some of the free acid.

In 1928, C. R. E. Freezer, C. S. Gibson and E. Matthews pointed out that since fresh milk neutralized approximately its own volume of 0.3% hydrochloric acid, if approximately one and a half litres (two and a half pints) could be administered so as to coincide with the varying rates and periods of acid secretion, milk in itself would be sufficient to ensure neutrality of the gastric contents, provided not more than 1,500 cubic centimetres of gastric juice of 0.3% concentration was secreted during the day. In point of fact it was shown that the hourly administration of milk usually resulted in achlorhydria for a considerable portion of the day, but free acid tended to reappear ten to fifteen minutes before the next feed, especially towards the afternoon or evening.

But to obtain the requisite amount of calories, at least five to six pints of raw milk would be required every day, and even a healthy viscus would have great difficulty in disposing of so large a

quantity of fluid. Further, owing to the difficulties attending digestion of the tough clot formed in the stomach, uncomfortable peristaltic movements might arise, and copious, bulky stools containing undigested curd would be passed.

Milk, eggs, cream and finely ground cereals constitute the basis of most of the numerous diets that have been proposed, the more popular being associated with the names of Lenhartz, Sippy, Bolton and Hurst.

The main distinction between these diets is in the amounts and times of the feeds. Frequent feeds are necessary to prevent an accumulation of acid juice in an empty stomach. But whether food should be taken at one-hour, two-hour or even longer intervals is a question that should be decided in each individual case.

The proportion of cures, if one can judge by statistics, appears to be about the same with all these special diets; hence medical practitioners should not adopt one special dietetic scheme to the exclusion of all others, but should endeavour to suit the individual findings and the individual tastes of the patient. It is far better to satisfy a patient with cereals than to nauseate him with an exclusive diet of half milk and half cream. In other words, whether we adopt a cereal-carbohydrate, a milk diet, an egg-white-butter diet, or a mixture of soft foods should depend upon the individual patient. Hurst has rightly pointed out that it is illogical to vary a diet at definite fixed intervals, and that once the diet has been adjusted to suit the patient, no further change should be made until all available evidence shows that the ulcer has healed.

For this reason, unless severe hæmorrhage has taken place or the patient is unable to take the full amounts, the treatment may generally be commenced at the diet laid down for the sixth or eighth day.

Lenhartz Treatment.

Realizing that free hydrochloric acid was the main factor preventing healing of a peptic ulcer, the late Professor Hermann Lenhartz, of Hamburg, advocated the alternate administration of milk and eggs every hour from 7 a.m. to 7 p.m., with the idea of converting all free acid into an acid albuminate.

By the older schemes of entrenched milk feeding the patient was reduced to a state of semi-starvation, and the Lenhartz method was an initial attempt at supplying a minimum quantity of food of maximum calorie value. Absolute rest in bed is maintained for at least four weeks, and all mental excitement must be avoided.

Take the total number of eggs for the day, beat them (with a little sugar) and divide them into seven feeds; put the feeds into separate vessels, and use them as directed, alternating them, of course, with the milk. The eggs, milk and spoon are kept on ice. Patients are not allowed to feed themselves. The nourishment is given slowly, a teaspoonful at a time.

On the first day, even when hæmatemesis has occurred, the patient receives between 200 and 300 c.cm. (3vi to 3ix) of iced milk, and from two to four raw eggs in the twenty-four hours.

The portion of milk is increased each day by three ounces (100 c.cm.) and, at the same time, one additional egg is given, so that at the end of the first week the patient is receiving twenty-five ounces (800 c.cm.) of milk, and from six to eight eggs. Both these foods are continued at approximately the same amount per diem for another week. No more than a litre of milk is allowed at any time.

Besides milk and eggs, some raw chopped meat (scraped beef) is given between the fourth and the eighth day, usually on the sixth, nine drachms (35 grams) each day, in small divided doses (stirred up with the eggs or given alone); the following day eighteen drachms (70 grams) and later possibly more if well digested.

The patient is now (eighth day) able to take some rice, well cooked, thin bread and butter, or a few softened Zwiebacks, and half the eggs are given soft cooked.

On the tenth day raw minced ham, pounded chicken and butter are added.

In the third week the diet is gradually increased by the addition of cooked mince or pounded fish, with a corresponding reduction of eggs, until by the end of the fourth week the patient is on the ordinary convalescent or post-ulcer diet (see Table II).

The patient is given strict orders to masticate his food most thoroughly.

Since eggs form such an essential part of the Lenhartz régime, it is advisable to note the effect of cooking on the digestibility of this particular foodstuff. A raw hen's egg leaves the stomach almost as soon as it is eaten, because its digestion is almost solely a pancreatic and not a peptic phenomenon. On the other hand, if the egg is hard boiled and not well masticated, it will be retained for an unduly long time in the stomach, and, because of its firm, lumpy consistency, the gastric ferments will have difficulty in penetrating its depths (compare Metz's test for determining peptic activity). For the same reason a hard-boiled egg taken in a finely divided state, in the way it is given to young chickens, or when it is masticated, is an easily digestible food.

Sippy Treatment.

The principles and details of management, as outlined by Dr. Bertram W. Sippy, of Chicago, in 1915, are more or less familiar to members of the medical profession. Its distinguished originator, noting that gastro-jejunostomy without excision of the ulcer produced a cure through reducing acidity and accelerating emptying time, considered it logical that the healing of peptic ulcers would be still more favoured by destroying all peptic activity.

The essential points of "the intensive treatment" are rest in bed for three or four weeks, no work for seven or eight weeks, the combination and neutralization of all acid secreted by means of frequent small feedings, and the regular administration of alkalis. To quote Sippy:

At regular intervals a thermos flask containing a chilled mixture of half a pint of milk and one-quarter to half a pint of cream, is conveniently placed at the bedside, together with the powders, a measuring glass, and a time-piece.

TABLE II.
Recapitulation of Lenhart's Diet.

Foodstuff.	Day of Treatment.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Eggs, raw (number) ..	2	3	4	5	6	7	8	4	4	4	4	4	4	4
Eggs, cooked (number)	—	—	—	—	—	—	—	4	4	4	4	4	4	4
Sugar:														
Grammes ..	—	—	20	20	30	30	40	40	40	40	40	50	50	50
Drachms ..	—	—	5	5	8	8	10	10	10	10	10	12½	12½	12½
Milk:														
Cubic centimetres	100	200	300	400	500	600	700	800	900	1,000	1,000	1,000	1,000	1,000
Ounces ..	3½	6½	10	13½	16½	20	23½	26½	30	33½	33½	33½	33½	33½
Raw scraped beef:														
Grammes ..	—	—	—	—	—	35	70	70	70	70	70	70	70	70
Ounces ..	—	—	—	—	—	1½	2½	2½	2½	2½	2½	2½	2½	2½
Rice, boiled in milk:														
Grammes ..	—	—	—	—	—	—	100	100	200	200	300	300	300	300
Ounces ..	—	—	—	—	—	—	3½	3½	6½	6½	10	10	10	10
Zwieback:														
Grammes ..	—	—	—	—	—	—	—	20	40	40	60	80	80	80
Ounces ..	—	—	—	—	—	—	—	¾	1½	1½	2	2½	2½	2½
Chicken:														
Grammes ..	—	—	—	—	—	—	—	—	50	50	50	50	50	50
Ounces ..	—	—	—	—	—	—	—	—	1½	1½	1½	1½	1½	1½
Butter ..														
Grammes ..	—	—	—	—	—	—	—	—	20	40	40	40	40	40
Ounces ..	—	—	—	—	—	—	—	—	¾	1½	1½	1½	1½	1½
Calories ..	270	430	650	800	1,000	1,135	1,580	1,720	2,138	2,478	2,941	3,007	3,007	3,007

¹ Two portions.

The patient can then easily manage his feeds, which consist of three ounces of the mixture taken hourly from 7 a.m. to 7 p.m. daily.

No. 1 Powder.

Heavy Magnesia 33 Sodium Bicarbonate, gr. x

No. 2 Powder.

Bismuth Oxycarbonate, gr. x Sodium Bicarbonate, gr. xx

The powders are given alternately, midway between the feedings. Powder No. 1 is somewhat laxative because of the presence of magnesia.

To ensure success, absolute control of acidity must be maintained, and for this reason the stomach contents are aspirated at frequent intervals during the first week.

The following Sippy diet schedule is taken from *The Journal of the American Medical Association*, Volume LXIV, 1915, page 1625.

Days 1, 2 and 3.—(a) 6.30 a.m., bismuth oxycarbonate, one teaspoonful. (b) 7 a.m. to 7 p.m., three ounces (90 cubic centimetres) of half milk, half cream mixture at hourly intervals (approximately 1,600 calories). (c) Powders 1 and 2 alternately midway between the feeds, and also every half-hour between 7 p.m. and 10 p.m. (d) Routine stomach aspirations on two afternoons and three evenings each week to determine if free acidity is controlled. Dosage of alkalis adjusted to conditions found. (e) 10.30 p.m., aspirate stomach contents and measure residue.

Day 4.—(a) Soft boiled egg and typhoid bread and butter with 10 a.m. feed. (b) Omit gastric aspiration unless residue greatly in excess of normal (10 cubic centimetres).

Day 5.—Cereal, three ounces (90 cubic centimetres), with 3 p.m. feed. (Well cooked semolina, arrowroot, gruel, farina, cream of wheat *et cetera*).

Day 6.—(a) Soft-boiled egg with 10 a.m. and 3 p.m. feeds. (b) Cereal, three ounces (90 cubic centimetres), with 6 p.m. feed.

Day 7.—(a) Soft-boiled egg with 10 a.m. and 3 p.m. feeds. (b) Cereal, three ounces (90 cubic centimetres), with 9 a.m. and 6 p.m. feeds.

Day 9.—(a) Soft-boiled eggs with 8 a.m., noon and 6 p.m. feeds. (b) Cereal, three ounces (90 cubic centimetres), with 10 a.m., 3 p.m. and 7 p.m. feeds.

Days 14 to 20.—(a) Custards, cream soups, vegetable *purées* are substituted for some of the half milk, half cream feeds. (b) Total bulk of each feed not to exceed six ounces. (c) Weekly weight registered.

Days 21 to 28.—(a) Three regular meals (not exceeding 10 to 15 ounces) at 8 a.m., noon and 6 p.m., with three intermediate feeds (three ounces) at 10 a.m. and 3 p.m. (b) One powder every half hour after three main meals for three doses. (c) Between intermediate and main meals powders and half milk, half cream feeds (three ounces) alternately, at half-hourly intervals. (d) After evening meal one powder every half-hour for four or five hours. (e) All powders should be omitted for five days, at intervals of from six to eight weeks for twelve months.

The shortcomings and dangers of the Sippy régime are now well known: evanescence of the antacid effect with small doses, secondary acid secretion after moderate amounts, and abolition of peptic digestion and alkalosis with massive dosage.

The toxic symptoms of alkalosis are variable: nervous irritability, anorexia, vomiting, vertigo, aching pains in the muscles and joints, and persistent headache. Objective findings consist of slow

respiration, accelerated pulse, flushed face, profuse perspiration, apathy and drowsiness, and a raised blood urea.

A diagnostic feature is the presence of an extremely low concentration of chloride in the urine. This deficiency may be demonstrated by adding nitric acid and a small quantity of 10% silver nitrate solution to some freshly passed urine, when a faint turbidity, instead of the customary heavy precipitate, will appear.

The value of Sippy's method is, however, generally recognized, but it is a somewhat arduous treatment both for the patient and his nurse.

Bolton's Treatment.

Bolton claims that whether the feeds are given at one-hour, two-hour or even at longer intervals depends largely upon the individual peculiarity of the physician; he holds that in the majority of cases of peptic ulcer adequate neutralization may be effected by three-hourly milk feeds.

The following schedule of Bolton's diet is taken from *The British Medical Journal* of April 19, 1930.

Seven ounces of citrated milk are given every three hours—at 7 a.m., 10 a.m., 1 p.m., 4 p.m., 7 p.m. and 10 p.m.—which diet the patient continues for one week (798 calories *per diem*).

At the end of seven days raw egg beaten up with milk (strength, one egg to half a pint of milk) is substituted for three of the milk feeds, namely, 7 a.m., 1 p.m. and 7 p.m., for two weeks (1,203 calories *per diem*).

The diet is now gradually built up at these times into three meals a day with three milk feeds alternating.

This process takes another three weeks.

First week.—A thin slice of bread and butter is added to the three egg and milk feeds; the egg is lightly boiled; pounded fish (whiting) substitutes one of the eggs; and, lastly, pounded chicken substitutes a second egg.

Second week.—A cereal such as arrowroot or ground rice is boiled in milk, or custard or junket forms a second course to the fish and chicken; ordinary fish stewed in milk and ordinary chicken substitute the pounded foods; milk pudding with stewed apples or prunes (sieved) form the second course. The patient may now commence getting up.

Third week.—Mashed potato and sieved greens are added; minced mutton and then ordinary mutton are given; the milk with meals is given the whole time; but the 10 p.m. feed is now omitted.

Note.—Take one powder two hours after each meal, that is, at 9 a.m., noon, 3 p.m., 6 p.m. and 9 p.m.

Number 1 powder.—Heavy magnesia, 10 grains, sodium bicarbonate, 20 grains. Take one powder three times a day, two hours after the chief meals (that is, at 9 a.m., 3 p.m. and 9 p.m.).

Number 2 powder.—Sodium bicarbonate, 15 grains. Take one powder two hours after the intervening milk feeds (that is, at noon and 6 p.m.).

For the first week seven ounces of citrated milk are given every three hours from 7 a.m. to 10 p.m. At the end of this period a raw egg beaten up with milk is substituted for three of the milk feeds, namely, at 7 a.m., 1 p.m. and 7 p.m.

This is the scheme for the first two or three weeks, but for the second three weeks the feeds are gradually built up at these times into three meals a day, with three milk feeds alternating.

Powders are administered alternately two hours after the feeds: powder number 1 after the chief meals and powder number 2 after the intervening milk feeds.

If continuous hypersecretion is found and the acidity of the resting juice is high, atropine should be given hypodermically in doses of one-fiftieth of a grain at bedtime.

Hurst's Treatment.

Hurst recommends, every hour from 8 a.m. to 10 p.m., five-ounce feeds of citrated milk, alternating with arrowroot, Benger's food, custard, white vegetable *purées*, *et cetera*; thus in all, three and three-quarter pints (approximately 2,000 to 2,250 calories) are taken in the day.

In addition, one ounce of cream is added to the 11 a.m., 1 p.m. and 5 p.m. feeds, and half an ounce of olive oil is taken before the 9 a.m., 2 p.m. and 7 p.m. feeds.

Atropine sulphate (one two-hundredth of a grain) is administered by the oral route three times a day, before the 8 a.m., 3 p.m. and 10 p.m. feeds, and drachm doses of the tribasic phosphates of magnesium and calcium (or calcium carbonate) are given after those taken at 3 p.m., 7 p.m. and 10 p.m. respectively.

A sample menu for strict ulcer treatment according to Hurst's *régime* is shown in Table III.

Hurst's intermediate ulcer diet is as follows.

To be given for two weeks between strict diet and post-ulcer *régime*.

1. Every hour from 8 a.m. to 10 p.m. (except at 9 a.m. and 1 p.m., 5 p.m. and 7 p.m.) take some of the following milk mixture: 1 quart of milk, 5 ounces of cream and 120 grammes of sodium citrate in 1 ounce of water.

2. 9 a.m. and 5 p.m.: Olive oil (half ounce) and 1 drachm of atropine mixture; weak milky tea; one or two lightly boiled, poached or scrambled eggs; thin bread and butter or toast.

TABLE III.

Time.	Before Feed.	Feed.	Between Feeds.
7 a.m.	Bismuth oxy carbonate ($\frac{1}{2}$ oz.).	Citrated milk (5 oz.), rusk and butter.	
8 a.m.	Atropine mixture (1 dr.).	Milk jelly.	
9 a.m.	Olive oil ($\frac{1}{2}$ oz.).	Citrated milk (5 oz.).	
10 a.m.	Magnesia emulsion (B.P. Codex) (1 dr.).	Arrowroot and cream (1 oz.).	
11 a.m.		Citrated milk.	
12 noon		<i>Purée</i> , rusk, butter and cream (1 oz.).	
1 p.m.		Citrated milk.	
2 p.m.	Olive oil ($\frac{1}{2}$ oz.).	Custard.	
3 p.m.	Atropine mixture (1 dr.).	Citrated milk, rusk and butter.	Calcium carbonate ($\frac{1}{2}$ to 1 dr.).
4 p.m.		Jelly and cream (1 oz.).	
5 p.m.		Citrated milk.	
6 p.m.		<i>Purée</i> .	
7 p.m.	Olive oil ($\frac{1}{2}$ oz.).	Citrated milk.	Calcium carbonate ($\frac{1}{2}$ to 1 dr.).
8 p.m.		Benger's food.	
9 p.m.	Magnesia emulsion (1 dr.).	Citrated milk.	
10 p.m.	Atropine mixture (2 dr.).		Calcium carbonate ($\frac{1}{2}$ to 1 dr.).

3. 1 p.m. and 7 p.m.: Olive oil (half ounce) with 1 drachm of atropine mixture; fish or chicken with mashed potatoes and vegetable *purées*; custard, junket *et cetera*.

4. One teaspoonful of an alkaline powder in water one hour after each of four meals.

During the intermediate stage the patient is no longer confined to bed, his food allowance is more liberal, and he gradually accustoms himself to a *régime* which he will have to follow permanently. If the ulcer has not healed during the strict *régime*, the intermediate treatment also acts as an extra safety measure.

Hurst's scheme secures adequate neutralization without any of the secondary gastric stimulation which is so objectionable a feature of the Sippy *régime*, but the thrice daily administration of atropine would appear to be an unnecessary adornment. This scheme differs materially from the aforementioned diets in that once it is adjusted to the patient's individual requirements, its composition becomes fixed until such time as examination reveals the ulcer to be healed.

In Russia and Germany good results are recorded from a diet of pure egg white and pure butter, given separately, but at much longer intervals. During the first week the whites of eight to ten eggs are divided into four or five meals *per diem*, after each of which fresh butter, mixed with very finely ground sugar, should be administered, the daily ration of butter and sugar being 100 grammes (total calories about 1,400). Weak tea may be freely drunk.

During the second week the juice of ten oranges and of ten tomatoes, divided into four or five portions, is taken, either on an empty stomach or after the butter.

In the third week pulped green vegetables, cereals, *purée* of potato, and potatoes cooked "in their jackets", with the addition of a little butter and salt, may be taken.

One fault in all these diets is that provision is not made for cases of continuous secretion. If this is present, food should be given throughout the night, but at less frequent intervals, say 9 p.m., midnight and 3 a.m. The stomach is not under the jurisdiction of any local government authority enforcing nine o'clock closing.

Convalescent Diet.

The prevention of a relapse after treatment by any one of the preceding schemes necessitates recognition of the fact that a minimum of gastric strain can be secured only by diet planned on such a basis. Hence it is unwise for any sufferer from chronic peptic ulcer to revert to heavy and irregular meals, and a suitable convalescent diet should be instituted.

The following is T. Izod Bennett's scheme for patients convalescent after treatment by one of the preceding schemes (approximately 3,000 calories).

A. Three light meals daily: breakfast, luncheon and supper.

Breakfast, 8 to 9 a.m.—One or two lightly cooked eggs with a little fish as a variant on one day weekly; three pieces of thin toast; butter; honey or marmalade jelly; one large cup of milky tea or coffee.

Luncheon and dinner, 1 p.m. and 7 p.m.—Milky soup strained through a colander; omelet, eggs, sieved fish, minced chicken or minced lamb; well-mashed milky potato, well-mashed turnips, peas or artichokes, soft caul-

flower tops, sieved spinach; milk pudding, baked custard, stewed apple, fruit "fools", ice cream, blancmange.

Both luncheon and dinner can be selected from the above list; helpings must be sparing, and there must be no second helpings. Cream may be added. On one or two occasions every week a small helping of tender roast chicken or a tender lamb cutlet may be substituted, provided that it is very thoroughly masticated and eaten slowly. At two meals each week a little lightly cooked liver or kidney may be taken, provided that it is so soft that it can be cut by a fork and the stringy portions are removed.

B. Intermediate feeds.—These must be taken in the middle of the morning, the middle of the afternoon, and in the late evening (about 9.30 p.m.). They may consist of milk, Horlick's malted milk, milky coffee, "Ovaltine", milky tea *et cetera*, to taste. The mid-afternoon feed may take the form of afternoon tea, at which sweet biscuits or sponge or Madeira cake may be taken as an addition.

The patient should adhere to the ten commandments laid down for post-operative cases just as closely as if a gastro-jejunostomy had been performed, and he should come up for a periodical examination by his medical adviser once a quarter.

The actual risk to life in this disease is practically limited to the occurrence of hæmorrhage or perforation, and it therefore becomes the duty of the medical attendant to let the patient know the reasons for the above precautions.

Duodenal Feeding.

Duodenal feeding has recently been recommended as being an efficient treatment for gastric ulcers, more especially those situated on the lesser curvature. A Young's duodenal tube (which is thinner and more flexible than a Ryle's tube) is passed into the duodenum (preferably one inch beyond the 35-inch mark), and eight-ounce feeds of one egg beaten up in milk and Benger's food with half an ounce of cream are given alternately every two hours, from 8 a.m. to 8 p.m., for a minimum of twenty-one days.

The object of this treatment is to place the stomach completely at rest, but the intestinal phase and the continuous secretion of gastric juice are not prevented, nor has gastric immobility been demonstrated radiographically. Nevertheless healing appears to be effected about a week earlier than by the older methods of treatment—rather a meagre gain when the difficulty of the technique is considered.

Alkalis.

In conjunction with the majority of the aforementioned diets, alkali therapy is probably almost unnecessary, but after the period of strict dieting, alkaline drugs, in moderate dosage, are certainly to be recommended.

Sodium bicarbonate has the dual disadvantage of liberating carbon dioxide, productive of gastric distension, and of inducing a reactionary stimulation of the gastric juice. Its neutralizing power is only temporary and, furthermore, its stimulating action on peristalsis is an additional disadvantage. Likewise, magnesium oxide and magnesium carbonate, if given in excess, induce a secondary stimulation of gastric secretion.

Sodium and potassium citrates and tribasic calcium and magnesium phosphates have none of the

above disadvantages; but, unfortunately, magnesium phosphate tends to be gritty, and patients may object to it.

Hydrated magnesium trisilicate differs from all other alkalis in that its neutralizing action continues for three or four hours, even in the presence of an excess of acid. Hence it becomes possible to secure a continuous antacid effect throughout the whole of the normal period of gastric digestion by the administration of a single dose. One gramme of this powder is alleged to neutralize 310 cubic centimetres of N/20 hydrochloric acid, the approximate equivalent of normal gastric juice. The dose for full control has been calculated as 35 grammes given every three hours for acidities up to 0.3%; but in clinical practice, when an orthodox diet is adopted, the dosage rarely need exceed half this amount. One-half to two teaspoonfuls given midway between meals may be regarded as an average dose; a teaspoonful of the powder weighs about sixty grains.

This drug has proved to be of great value in neutralizing the acidity of continuous secretion, and, further, the above dosages are far below those known to produce the toxic symptoms of alkalosis.

The great difficulty of alkali treatment, apart from the menace of secondary secretion and alkalosis, has been its intermittency, especially its interruption during the long night period.

By the continuous instillation of suitable alkalis, night and day, through an indwelling Jutte tube (nasal or preferably oral), a constant control may be attained which is readily checked at any time by the aspiration of gastric fractions.

Since a 7% colloidal suspension of aluminium hydroxide absorbs as much as 20 to 25 times its own volume of N/10 hydrochloric acid, 200 cubic centimetres of this solution are diluted with 600 cubic centimetres of distilled water and allowed to run into the stomach continuously, at the rate of five to six drops per minute. Under such treatment it is claimed that an ulcer niche will completely disappear in from seven to fourteen days, instead of the average forty-one and a half days, as estimated by Buckstein.

Antispasmodics.

Many physicians administer belladonna (*Tinctura Belladonnae*, ten minims) or its alkaloid, atropine (one two-hundredth of a grain), with the object of depressing vagal activity and thereby inhibiting both gastric secretion and gastric motility. But bilateral vagotomy will abolish only psychic (cephalic phase) secretion, and, further, atropine does not influence the histamine effect on the gastric glands.

For over a decade Dr. Walter A. Bastedo has proclaimed that even with large doses of atropine it is impossible to induce achlorhydria, and that, even though toxic symptoms be produced, hydrochloric acid will still continue to be secreted by the gastric mucosa.

The same observer holds that absence of relaxation of the pylorus may be due *inter alia* to vagal

(achalasia) or sympathetic (pylorospasm) action, hence the great confusion that has arisen with regard to the effect of atropine on gastric motility; one group of experimenters claim an increase after injection, whilst others note a diminution in tone of the pyloric sphincter.

It would therefore appear that, although a single maximal hypodermic dose of atropine may limit secretion or spasm, there is little value in those doses commonly administered by mouth or those employed for constant use.

Nevertheless, atropine has been shown to limit continuous secretion; hence, if the passage of a Ryle's tube shows the continuous secretion of a juice with high acidity, a hypodermic dose of one-fiftieth of a grain should be administered at bedtime.

Olive Oil.

Olive oil has been shown experimentally to inhibit both the motor and the secretory activity of the stomach; it also causes relaxation of the pylorus and increases the influx of bile. These observations have been confirmed many times in man by means of fractional test meal examinations. Olive oil has also a useful calorie value; and, if one and a half ounces are taken *per diem*, as with Hurst's diet, an energy value of about 400 calories is obtained. It is best given alone and not in combination with food, and should be given warm and possibly flavoured with oil of peppermint.

Parenteral Treatment.

The parenteral methods of treatment, such as protein therapy, the histidine treatment and pepsin therapy, have not passed beyond the experimental stage.

It is common knowledge that there are many strange and unexplained conditions under which the acute symptoms of peptic ulcer may subside, such as a Christian Scientist attitude, a *placebo* of physiological saline solution, a "double-header", a dose of alkali, a barium meal, a game of golf, a hæmorrhage, a vacation, and so on. The mechanism of relief varies with the individual, and possibilities for relief frequently depend upon the histological status of the ulcer at that particular time. The discouraging feature, however, is that symptoms usually recur in a similar strange manner.

In order to evaluate any new therapeutic measure for the cure of peptic ulcer, certain data must be considered:

1. Does the method under consideration produce a higher percentage of cures in the age groups of unselected ulcer patients than does the customary "intensive treatment"?
2. What percentage of patients, not responding to the standard *régimes*, become cured when the new method is instituted?
3. Does the new method prolong the symptom-free interval or prevent recurrence?
4. Does the new method influence gastric acidity?
5. Does the new method of treatment produce any reaction or untoward effects?

Protein Therapy.

The rationale of protein therapy is the fact that non-specific proteins, when introduced into the circulation, act as general metabolic and cell stimulants, and, since pathological tissues are more sensitive to stimulation or irritation than normal tissues, the ulcer lesion reacts to a greater degree than the surrounding healthy tissues. The focal reaction thus renders the chronic ulceration acute, strengthens the powers of regeneration and favours healing. The most important of these non-specific proteins are "Vaccineurin", "Novoprotein", "Aolan", various strains of organisms and vaccines, "Hemoprotein" (Brooks), and so on. The protein is administered intravenously in gradually increasing doses, at three-day intervals, until ten to eighteen injections have been given.

Fractional test meal investigations have demonstrated that, although during the period of reaction there might be an initial increase, the ultimate effect was a diminution of gastric secretion, involving both hydrochloric acid and ferments. The reduction in gastric acid was found to be due, at least in part, to changes in chloride metabolism, as was indicated by an increased excretion of urinary chlorides. Pain usually ceased after the first injection, but occasionally there was a feeling of epigastric pressure persisting during the period of reaction. X ray examination demonstrated a diminution of gastric tonus, and a reduction in the tendency to spasmodic hour-glass contraction and pylorospasm.

Reports on the effect obtained by the injection of foreign proteins are lacking in uniformity. A somewhat similar procedure is the recently introduced histidine treatment.

Histidine Therapy.

Histidine, a powerful basic "biogenic amine", is an important building stone in the synthesis of protein and enters largely into hæmoglobin production, blood being its commercial source.

The animal body does not possess the ability to synthesize this amino-acid, nor can any other amino-acid, such as cystine, lysine or tryptophane, replace it. Its presence in foodstuffs is widespread, the most important sources being beef, eggs, fish and milk.

Treatment consists essentially in the daily intramuscular or subcutaneous injection for about three or four weeks of five cubic centimetres of a 4% solution of histidine hydrochloride (0.2 gramme). The patient remains ambulatory, but for the first ten days a modified Lenhart diet should be given, after which time a normal diet becomes permissible.

No constant changes in acidity were noted in Bulmer's, Sandweiss's or Martin's series of cases.

In patients undergoing treatment with histidine it is conceivable that the secretion of gastric mucus may be augmented; hence a symptomatic relief, similar to that obtainable by the oral administration of four or five ounces of gastric mucin, may eventuate.

The work of L. Manginelli tends to support this contention. In an investigation of 494 cases of peptic ulcer, S. J. Fogelson found that mucin therapy gave a symptomatic cure in 70.5% of cases, partial relief in 23%, and no relief of symptoms in 6.5%.

A consideration of the published results does not warrant the employment of histidine as a routine method, but it may be valuable as an accessory method for such patients as do not respond to the customary diet-alkali-antispasmodic management.

The results of parenteral therapy are shown in Table IV.

Pepsin Therapy.

Treatment by daily subcutaneous (or intramuscular) injections of a neutral, albumin-free solution of pepsin aims at the production of an antipepsin which will not only reduce the peptic power of the juice, but also increase the resistance

TABLE IV.
Immediate Results of Parenteral Treatment.

Author.	Number of Cases. ¹	Improved.	No Improvement.	Symptom Free.	Remarks.
<i>Protein Therapy—</i>					
B. O. Pibram ..	77	26.0	20.0	54.0	57 gained weight, 18 showed reduced acidity. Gastric and duodenal. Disappearance of niche in one out of 18 cases.
F. Baake ..	250	44.0	23.0	33.0	
L. Martin ² ..	24	16.0	16.8	66.6	
<i>Histidine Treatment—</i>					
E. Bulmer ..	52 { 17D. 35G.	19.3	23.0	57.7	No change in gastric acidity. Disappearance of X ray signs, 30.
J. T. Eads ..	35 { 30D. 5G.	25.7	34.3	40.0	X ray healed ulcer 14, and unhealed 9.
K. A. Martin ..	41 { 38D. 3G.	9.8	26.6	63.4	X ray healed ulcer 14, and unhealed 12.
D. J. Sandweiss ..	40 { 28D. 8G. 40J.	20.0	25.0	55.0	85% recurrences within six months.
<i>Pepsin Therapy—</i>					
K. Glaesner ..	1,000	24.0	10.0	66.0	

¹ In this column D=duodenal, G=gastric, J=jejunal.

² Intramuscular "Aolan" therapy.

³ Ten months later only half the patients were still symptom free; ulcer healed group, 10; and ulcer unhealed, 3.

TABLE V.

Year.	Number of Cases.	Period of Follow-up in Years.	Cured.	Improved.	Unimproved.	Operated on.
			%	%	%	%
1922	22	4	27.3	22.7	9	32
1923	17	3	41.2	23.5	6	23
1924	30	2	56.6	10.0	7	23
1925	32	1	67.5	22.0	9	3

of the gastric mucous membrane to digestion. This method, originated by Professor K. Glaessner, of Vienna, entails, in addition to a course of twenty injections, a definite diet of five meals a day, half an ounce of olive oil before meals, and the ingestion of bismuth or magnesium salts after meals. Its originator reports objective and subjective cures in more than two-thirds, and favourable results in 90% of over 1,000 controlled cases of peptic ulcer.

Healing of an Ulcer.

It is a comparatively easy matter to follow up the healing process of a gastric ulcer by serial radiograms, and several series of cases have been published.

Absence of occult blood from the stools is no guarantee that complete healing has occurred. It merely indicates that the ulcer is no longer active or spreading. Disappearance of symptoms is even of less value, for it denotes nothing more than disappearance of painful spasm. Disappearance of the niche means that the ulcer has become filled up with granulation tissue *et cetera*, and if symptoms do not recur within six months the ulcer is usually assumed to be completely healed. Unfortunately this event is not the closing phase in the life history of many ulcers, for there is a great risk of recurrence. The regenerated mucous membrane is thin and deformed, and is implanted on dense fibrous tissue with an imperfect blood supply.

The carefully observed cases of M. Einhorn and B. B. Crohn showed the results set out in Table V.

These statistics demonstrate the fact that the percentage of cures diminishes with lapse of time. In short, at the end of four years from the institution of efficient medical treatment only 50% of the patients remain cured or even improved, and in this series one-third had to submit to surgery.

These figures are in close agreement with those of B. E. Tomson, who followed up, with control X ray examination, 128 patients who had been admitted to Saint Thomas's Hospital (London) during the previous five years. The lesion had persisted, recurred or developed anew in 38.5% of the patients with gastric ulcer, and in 33.3% of those with duodenal ulcers.

There are three possible causes for a return of symptoms: first, the ulcer may persist in an unhealed condition; second, a new ulcer may form in another situation (11.5% of Stewart's autopsies); and third, the cicatrix may break down. In most of the recurrences observed by radiography the niche has reappeared at its former site, which would point to reulceration of the scar.

Unfortunately at the present time a chronic peptic ulcer is rarely diagnosed and treated efficiently until the patient has had several relapses, over a period of years. During this period he may have had numerous tins of alkaline powder, and perhaps a week or so in bed when the pain was unusually severe, but no curative tests have been applied nor has any post-ulcer *régime* been instituted.

Conclusions.

Three pertinent conclusions emerge from the above discussion:

1. The longer an ulcer remains open, the more difficult the healing process, and the less sound the scar.
2. If a thorough and systematic medical treatment fails to secure complete healing of a peptic ulcer within four months, the patient should be automatically transferred to the surgical group.
3. If a chronic ulcer is to remain healed, the possessor must alter materially his pre-ulcer habits as regards eating, drinking, smoking *et cetera*.

PHYSICAL EDUCATION.

By C. H. HEMBROW,
Melbourne.

DURING the last few years there has appeared in many countries a renaissance of physical education.

The Greeks looked upon physical education as of great importance and gave it about half the time in the curriculum in order that an harmonious development of the whole human being might be obtained, for they recognized the essential unity of the education of mind and body and the importance of developing all the powers and capacities of each individual. It is probable that never since those times has any nation maintained such a high standard of physical education.

In many countries during the Great War it was found that a high percentage of recruits (30% to 50%) were unfit to face the conditions of active service. It was also observed that much of the unfitness was due to preventable conditions. When measures to prevent physical unfitness were considered, attention was drawn to the fact that neither the amount nor the quality of physical education was satisfactory.

In recent times the need for physical education has become greater than ever before. The circum-

stances of human existence have altered greatly in this the age of factory and machine, and while the physical exertion called for is less, the nervous strain is often greater. The efficient state of transport and mechanical contrivances has reduced the necessity for walking and for manual labour. The control of a machine may involve the operator, on the one hand in little or no muscular effort, or on the other in vigorous use of one set of muscles, often on one side of the body. Often continued faulty attitudes may be necessary, such as that adopted when a power sewing machine is used for fine work.

The growth of large cities has rendered difficult the playing of games and the acquisition of sufficient suitable exercise, and, owing to modern inventions, as radio and "talkies", recreations have tended to become more sedentary. Many children, for example, now spend Saturday afternoon at the cinema or in a motor car excursion with their parents.

The benefits of exercise and the results of the lack of it are well known. Physical fitness is more likely to be preserved in an environment in which much general muscular activity is a necessity, than under the conditions of a sedentary life and intellectual competition accompanied by continued mental concentration and emotional stress.

We must distinguish between the term physical education and physical training or physical culture, for the former has a broader meaning and should be considered as an integral part of general education, being that part of general education in which the activity of large muscles is the main concern. The report of the British Committee on Physical Education is therefore very welcome, and according to an editorial in *The British Medical Journal*, "it should be studied by every medical man and woman who wishes to help in promoting the fitness of the people and assisting them to make wise use of leisure". But, while it is advisable that we should study the efforts made in other countries to improve the physical standard of the people, we should be careful that anything we adopt is adapted to the Australian temperament, climate and local conditions.

The report shows that the state of physical education in British communities at present leaves much to be desired, both in the nature of the training and in the amount given.

The Aim of Physical Education.

I cannot do better than quote the opening paragraphs of the British report.

The aim of physical education is to obtain and maintain the best possible development and functioning of the body, and thereby to aid the development of mental capacity and of character. The mind and body are so essentially one that the divorce between them in what is commonly called education appears as unscientific as it is pronounced. However brilliant the intellect, a neglected body hinders the attainment of the highest capacity possible to an individual; and, conversely, the maintenance of the best possible functioning of the body must react as a beneficial mental stimulus.

An educated body is a balanced body, just as an educated mind in the true sense is a balanced mind. Balance of body, mind, and soul should go together and reinforce each other; and perfection of balance, physical, mental and spiritual, can be the only true and scientific aim of education. Balance results from the harmonious development of the body as a whole, while strength is often associated in the mind of the public with power of a single muscle or muscle group. It is possible to develop great strength without necessarily attaining perfect balance. Indeed, a man, although of great muscular strength, may yet be so little balanced as to be muscle-bound, so that the very size of his muscles may interfere with their coordinate action. Such was often the result of the old gymnastics, which too often produced strength rather than balance, and a broad, strong figure at the expense of agility.

Unfortunately, just as there are many who remain unaware of undeveloped mental capacities, so also there are many who are unaware of the hidden talents of their bodies. But it has often happened that an accidental opportunity of exercising the mind in a new direction has brought to light a previously unsuspected aptitude. Similarly, the first steps of education in physical fitness may reveal a latent bodily capacity and awaken the desire to reach a new standard of health.

The necessity of raising the national standard of physical efficiency requires no demonstration. While it is true that certain sections of the more youthful population show a commendable enthusiasm for health-giving physical activities, the general neglect of bodily fitness is evidenced in the examples of physical deterioration which are so common in daily life as to be accepted as inevitable. Men and women, especially those of middle age, who have allowed their bodies to fall into shapeless proportions and ungainly postures and their limbs to become shrunken and deformed, are a reproach to our sense of physical fitness. The absence of adequate education in the care of the body has led many to accept without thought the deformity of their bodies as something beyond their control. One problem of physical education is to bring home to the individual the knowledge that the body, like the mind, can be directed by the will, and to inculcate pride in the proper control of both.

Previous Systems.

An investigation of past methods of physical education in the light of modern knowledge has shown that these are inadequate and fallacious. In many schools, although games are played out of school hours, the only effort at physical education during school time consists of one or two periods a week devoted to exercise.

Two systems of training or a combination of both have been most frequently used during the past years. These were the Swedish and the German systems; but there were also other systems of minor popularity. The Swedish system was originated by Ling, and the German by Jahn. Both systems were regarded as having great disciplinary value, and as they required little apparatus and a minimum of special training, and needed only a few minutes of practice every day, they had thus the advantage of economy in time and money. Both were militaristic in origin and methods, and they endeavoured to impose discipline and other qualities which are much better developed as the result of the individual's own activities. The various and many-sided aspects of the problem of physical education cannot be dealt with by a system of exercises which at the best presents only a single method for the solution of these problems.

Nor can they be solved by mass production methods.

These systems do not fulfil the aims of physical education as laid down in the report.

Physical education should not be regarded merely as a means of counteracting certain effects of school life and study or as a means of drilling children. We should recognize and make use of its value as encouraging, besides the development of a healthy physique, the development of intelligence and character by the practice of such qualities as self-control, courage, confidence, alertness and concentration which are demanded in the pursuit of its activities.

Modern schemes of physical education must then consider this dual effect of physical education, the educational as well as the physical. The old school drill and formal exercises have as a result been relegated from the most prominent place to a minor part in the modern curriculum, being used now chiefly in the prevention of defects. Instead, we should in modern physical education guide the children in activities and recreations, based on their normal activities and natural play tendencies, which thus have to them a meaning and which allow at the same time opportunities for mental and social training, self-expression and enjoyment. Much more freedom and scope for enterprise are thus placed upon the teacher.

The British report urges that there should be adequate medical supervision in physical education and a close cooperation between the teacher, doctor, parents and the physical instructor.

It is therefore my object to discuss some of the medical aspects of this subject that is of such importance to the community, and though we must admit that our knowledge of it is in some directions very meagre, our foundations must be laid on the scientific principles known to us, and any scheme of physical education must conform with anatomical, physiological and medical facts and observations.

A Scheme of Physical Education.

A scheme of physical education may be considered in three divisions, each with its own part to play in building the whole scheme: (i) hygiene or health education, (ii) standardized exercises, (iii) recreations.

Hygiene.

Physical education must not be confused with health education. The two subjects are not identical, nor is one a part of the other. What is meant by the word "health"? For the purposes of health education we would define the word health as meaning a state of freedom from disease, and health education thus consists of any knowledge or training which will help the individual to attain this state.

But when we speak of health in connexion with physical education we understand a condition of all-round efficiency of the human mechanism, mentally and socially as well as physically, which enables the individual as a result to live fully and competently.

The two subjects have, however, much in common, and on this common ground of the hygiene of physical education we would include those hygienic factors of importance in the maintenance of physical fitness and efficiency. For example, we would teach the importance to physical fitness of such factors as fresh air, of proper food, water and sunshine, of a good environment and a satisfactory adjustment to it, of the necessity for adequate rest and for the use of proper clothes, beds, chairs and desks. A course of elementary anatomy and physiology and first aid should be given. Should not such knowledge of preventive value be regarded as an essential part of each child's education?

Under this heading there must be included the medical inspection of the children by school doctors at present carried out, whereby defects can be detected, prevented or treated.

Exercises.

Exercises of many types are used in physical education, and in the past in some schools the efforts at physical education have been almost entirely restricted to calisthenics and gymnastics. Such exercises were given with a view to producing as one of their objectives, health. There would seem to be no scientific evidence for the claim that by muscular exercise an individual can be made immune from disease. The influenza of the epidemic of 1918 appears to have attacked the physically fittest just as severely as it attacked the rest of the population. Measles, poliomyelitis, syphilis, colds and cancer heed not in their attack the muscular development of the individual. Moreover, exercises cannot correct those physical defects arising as a result of such factors as faulty heredity, deficient diet and poor economic conditions, or from pathological conditions, as adenoids, rickets *et cetera*.

A further reason for the giving of such exercises was the opinion that certain qualities, as precision and obedience, called forth during the lesson were capable of transference. This theory of formal discipline has now been abandoned. Because a pupil is made to exhibit endurance, alertness, exactness and instant obedience during a physical training lesson, it does not necessarily mean that these qualities will be any the more evident at other times.

Again, these exercises were often used with the idea of increasing the size and strength of the muscles, for it was thought that strength and muscular development were an index of health and physical efficiency; but measurements, taken at different levels around the calves, thighs, arms *et cetera*, are no indication of the possession of skill and coordination in the use of these muscles.

Formal exercises are apt to be dull and fatiguing. Watch a group of children doing standardized exercises in the standing position in the school yard. Is there any glow of pleasure or enthusiasm on their faces? On the contrary, a strained expression is often evident as they await, alert, the word or sign from the instructor. Here and there a weary arm wavers and droops a little.

When such exercises are over, has anything been achieved? Have the children learned anything of value? Have they any enduring effect to remain with them?

Such exercises have little or no relation to the natural activities of children, and in consequence are likely to be followed by no enduring effects, for no new motor habits are formed. No increase in useful coordination and no skill are required. No desirable social habits are inculcated, no character-forming habits are stimulated, and since no true purpose or rivalry is evident to the children, interest tends to wane. The best exercise is one that is enjoyed.

A man was never meant to contract his muscles for the sake of exercise. Muscular contraction should be the physical expression, the outer end of a plan. We should move to get something, or kill something in work as in sport, and with the consciousness formed always on the end, never on the means. [Richard C. Cabot.]

Stunts and feats on apparatus and complicated gymnastic displays would seem to serve little purpose in physical education and would not seem to be worth the trouble taken to accomplish their performance. Nevertheless, exercises, when they are soundly based on physiological principles, have a definite purpose and play an important part in physical education.

Exercises have the advantage that by their use attention may be diverted to the child's deficiencies and so better balance may be produced. Furthermore, exercises can be adapted to the individual needs at the different ages and in the two sexes. They can be given also in graduated sequences of increasing difficulty as required.

Recreations.

Recreations include the games, major and minor, athletics, swimming, dancing, camping, hiking and all forms of occupation likely to create a love of open air and natural activity. The recreations form the most natural and effective means of obtaining exercise. The child is taken out of himself in the pursuit of some objective and the exercise is obtained incidentally.

Games are very adaptable to the individual aptitude, skill and control are acquired and many social virtues, such as team work, sportsmanship and leadership, are exercised. If, however, games and athletics are carried out in an unrestricted competitive spirit or are organized for children on adult lines, they may give rise to overstrain and risk the physical well-being. Certain games have the disadvantage of over-development of certain muscles at the expense of others. Intensive specialization in young children and adolescents should therefore not be allowed. The importance of the minor games should be realized, for these require only the simplest of apparatus, easily improvised, and do not need special grounds.

Recreative training should not be allowed to replace systematic exercises completely, for in one sense the ability to indulge in games and athletics

et cetera is an end result of physical education. Physical defects may be seen even in those most proficient at games or athletics.

Although not a recreation, I must mention military training, as in many countries of the world military training is an important part of a physical education which is compulsory. Here are some examples:⁽¹⁾

The Supreme Court of the United States of America unanimously ruled that the arrangements for military pre-education in the universities and higher schools were legal, and stated that the physical and military education of youth have nothing to do with militarism, rather do they serve peace, for a land which is able to protect itself is not so easily attacked; physical training of youth and accustomatize it to manliness forms a good basis for national defence and lessens the danger of being entangled in a war.

Military education . . . will in future be an essential element in general education . . . I order herewith that in all schools everything which aids the accepted standardization of military preliminary training, shall be ensured the widest diffusion. [Mussolini.]

In France the Supreme Council for Physical Education has four commissions: (i) physical education in schools; (ii) camp life, scouting and holiday camps; (iii) sport and athletics; (iv) preparation for military service.

In order to further the participation and collaboration of medical activity in physical or in pre-military training, many countries offer at the universities, as in France, a course of special training in the type of physical education peculiar to the country, for this varies as to the nature of its government; and the possession of a certificate or diploma gained on completion of the course is required of all doctors of the schools, the army, the navy, the air force, and of sports federations and clubs.

Modern Methods.

We have seen that the aim of physical education is to produce a balanced and physically efficient individual. Certain criticisms were offered as to the nature of the training usually given and the lack of certain instruction, for example, on the hygiene of physical education. It therefore becomes necessary to make suggestions for the exercise programme, and in my opinion the exercises may be divided into the following main divisions: (i) exercises to preserve or attain a good posture; (ii) exercises to preserve body suppleness; (iii) exercises to aid such qualities as coordination, skill, agility, muscle strength.

Postural Exercises.

Good posture, in the widest sense of the term, infers a natural and balanced poise of the whole body at all times and under all conditions and in all activities, such as standing, walking and playing games. Much evidence exists in favour of the view that the possession of a good posture is of the utmost importance in the prevention of ill-health and disease, for when this is present, the various parts of the body are maintained at the best

mechanical advantage; but when the posture is poor the various parts of the body are placed at a mechanical disadvantage, and the various organs are prevented from functioning properly; for example, acquired visceroptosis may occur and as a result symptoms or even disease may appear, such as pelvic infection following a mobile kidney.

How is a good posture acquired? When a few months old a baby commences the great struggle of learning to hold up its head, to sit up, to crawl, to stand, and finally to walk. In other words, it learns to combat the action of gravity. By its own efforts, repeated many times, the child sooner or later gets his individual muscles to work together in teams, and the habit of standing and walking is achieved, the erect position being now maintained by reflex tonic muscular activity, that is, by the postural reflexes.

As the result of surveys in other countries we know that about 75% of children have minor or major postural defects and do not achieve the ideal carriage. This is one in which there is the least amount of work to do against gravity, and is one which demands efficient reflex action in the "anti-gravity" muscles, and especially in the abdominals and gluteals, which control the amount of pelvic tilt.

The regimen imposed on young children in civilized lands is artificial and unnatural, for from early years the child who otherwise would be engaged in general activity is condemned to spend long hours at desks and at study, often at the same time wearing faulty clothes and foot-covering.

The positions habitually assumed by many are detrimental to normal physical development and hinder especially the functions of respiration and circulation. The abdominal and gluteal muscles are particularly relaxed.

These habitual positions, moreover, often increase the development of muscles that are not anti-gravity muscles. The pectorals, dorsal cervical muscles and lumbar *erector spinae* become over-active, and wrong habit reflexes appear as a response to gravity.

One of the primary functions of physical education should be to secure and maintain a good posture, and unless the consciousness and practice of good posture becomes part of the daily life, we have failed in this important section of education; and one of our most important tasks is to prevent and correct these postural deformities by restoring the parts to an ideal, or rather normal, balance.

When postural defects are present, balance can be, and often is accomplished by the development of a compensatory defect. The older methods of training tended to obtain balance in this way. Most of the present systems of physical culture do produce this false correction, as for example, the correction of a dorsal kyphosis by the production of increased lordosis, and often while training is continued, efficiency is maintained by muscular over-development in certain directions, but when training is discontinued trouble occurs. Such persons are

more vulnerable to injury, owing to lack of reserve in certain directions. Surely our physical training should produce a normal individual by eradicating his defects rather than by merely compensating for them and keeping them in check.

There is abundant evidence to show that, when once obtained in adolescence, a good posture tends to be maintained, and thus more enduring effects are produced by training on a basis of normal postural requirements than by the rhythmic performance of the standardized and artificial exercises usually given. It is therefore necessary that the requirements of good posture should be understood more widely by teachers. They should themselves know how to stand well and how to estimate the standard of each child's carriage.

To obtain the knowledge and the feel of good posture, the children should be instructed by means of charts, by the use of mirrors and by the observation of other children, or best of all by being shown their own silhouette photographs.

The attainment of a good posture depends to a large extent on the flexibility of the body. Exercises then need to be given which stretch those muscles apt to become tight or over-developed, as the hamstrings and lumbar *erector spinae*, and which bring into action as a team those muscles that are of importance in the maintenance of good response to the action of gravity, such as the abdominal, gluteal, the trapezius and rhomboid sheet of muscles and the prevertebral cervicals *et cetera*. Many of the exercises now given, such as certain of those of the Swedish variety, should be abandoned, as they contain a large proportion of useless exercises, such as arm wagging, and, given as they are most often in the erect position, they do not help in the eradication of poor posture, but tend to maintain the false correction and exercise the already over-acting muscles, such as the *erector spinae*.

It is easier to acquire a new habit than to eradicate an old one. Therefore, since a poor posture is a poor habit reaction to gravity, while the exercises are given in the erect position, the faulty reaction will tend to be called forth. The corrective exercises should at first be given in a position other than the erect, as while lying, for then the effect of gravity is altered and the background of the old habit is eliminated and a new habit is the more easily formed. In this way the correct muscle team work is the more easily learned.

Body Suppleness.

Body suppleness, flexibility and mobility are precious qualities and while they are lost naturally with increase in age, yet much can be done to retain them from youth if regular exercise to maintain a full range of the joint movements is practised. Once lost, through lack of practice, body suppleness is difficult to regain. Owing to the stereotyped nature of many of our habits and actions in civilized life many movements are seldom performed and joints are used inadequately. For example, many people would not raise the arms fully above the

head once in a week, and in sedentary occupations prolonged sitting and lack of recreation lead to loss of hip extensor range and tone; shortening of the hamstrings and loss of quadriceps tone may also occur. In factories the control of a machine may result in the repeated use of one set of muscles. These result eventually in loss of range, mobility and balance in certain directions, certain muscles becoming as a result "tight" and shortened and their antagonists relaxed or elongated. This results in impairment of body suppleness. For example, in many adults, forward pointing of the shoulders due to over-development of the pectorals and relative weakening of the rhomboid and trapezius muscles is present. Many adults cannot raise the arms to the full height without hollowing the back, owing to shortening of the *latissimus dorsi*. One sees even children who, owing to tight hamstrings, cannot by some inches reach their toes when the knees are held straight. In many women dorsiflexion of the foot past a right angle cannot be obtained when high heels have been worn for many years. Exercises then should be used to preserve suppleness and to stretch any contracted structures, using the active contraction of the relaxed muscles with consequent reciprocal relaxation of the shortened muscles as a means of stretching these rather than passive stretchings, for the latter are apt to provoke protractive spasms in the tight muscles.

The Acquisition of Skill, Control and Muscular Strength and Coordination.

This aspect of physical education is usually well catered for and does not need further discussion, except to point out that the activities must be adapted to the needs and peculiarities of the individual, particularly in regard to age. We cannot, by training, make a racehorse of a draught-horse. For example, children, being incapable of long-continued concentration, should not be given highly organized or intricate calisthenics or games.

Exercises of skill cannot be used much before the age of eleven, nor strengthening exercises before fifteen years.

Breathing Exercises.—In the past, so-called breathing exercises were added to the gymnastic lesson, often at the end, when the air in the gymnasium would be most dusty. Chest measurements were taken at the beginning and the end of a course of training and the efficiency of the training was adjudged proportionately to the increase of chest expansion. Deep breathing, as well as muscular strength, was thought and still is thought by some to promote health and to prevent such diseases as pulmonary tuberculosis. It was explained that the deeper the breathing, the greater was the oxygenation of the blood.

Since the arterial blood is in a state of almost complete saturation with oxygen, excessive ventilation of the lungs does not increase the amount of oxygen carried by the blood. The body is provided with a respiratory centre by whose sensi-

tivity the oxygen supply is regulated in accordance with the needs of the body, and this is a more reliable mechanism than any scheme of breathing exercises. Very often also the exercise systems contain exercises designed to increase the chest capacity and, as a result, the lung capacity. Such exercises are futile. I except, however, those exercises used as a therapeutic measure, as for example after empyema. When these attempts were made by the use of exercises which endeavoured to increase the chest capacity by straightening the dorsal spine and spreading the ribs, they were dangerous as well as fallacious.

Very often the breathing exercises were combined with arm exercises, such as abduction and external rotation of the upper limbs, so that by the pull of the various muscles passing from the chest to the arms the inspiratory effect was supposed to be increased. Such an effect was probably not produced, and even if it was produced it would be useless.

Good wind does not depend on an increased chest expansion, but on the efficient coordination of the body systems, particularly the circulatory and the respiratory, and this is developed best by graduated exercise and training.

Special exercises to develop deep breathing are then unnecessary in normal children, for we can rely on the natural deep breathing automatically produced in response to the increased needs of the body after vigorous exercise, and this is the most natural and effective form of training to promote respiratory efficiency. It may be necessary to give exercises to teach a correct mode of breathing, especially in those who have postural defects. Proper use of the diaphragm is the important objective.

Indications for Physical Education at Different Ages.

Since the physical needs vary with the age of the individual, whether child, youth or adult, and with the sex and even with each individual, the indications for physical education will be different in the various stages of mental and physical development; but the chronological age is no exact or reliable guide.

A discussion of the various needs is a large subject, and I give, therefore, only a few general indications in the larger grouping of child, youth and adult.

The Child (five to eleven years).—Children left to themselves have a natural desire for movement and exercise. They exercise all their muscles by frequently changing and varied activities, but they tire easily, are very susceptible to fatigue and take frequent rests.

The special indications for physical education in children are thus: (i) To prevent those ill-effects likely to result from the nature of school life. (ii) To correct any threatened deformity. These, at this age, usually result from some previous illness, as rickets, asthma, or from such conditions

as adenoids *et cetera*. (iii) To organize and direct the natural play tendencies.

In the younger children is needed a programme consisting of vigorous but very simple general activities, such as running and catching games. Such games, which should be performed in the open air whenever possible, give the child an opportunity for enjoyment and self-expression. No increase in the strength of individual muscles should be attempted, and as children are not capable of long-continued concentration or of thinking in abstract terms, complicated games, exercises of resistance, calisthenics and drill are therefore not suitable.

While children need sufficient exercise, they also need frequent and adequate mental and physical rest. Appropriate relaxation and rest periods should be given throughout the day.

As the age of the child increases, the games may be made more complicated and difficult, in order to encourage the qualities of alertness, quickness and skill and cooperation in team work *et cetera*.

Later, education in the ideas of good posture and the coordination of muscle teams and in harmonious body development may be given, for it is very important that towards the age of ten years those basic activities which later will form the foundations of all skilled acquirements should be learned and mastered. These are running, jumping, hopping, throwing, catching, swimming, dancing, games *et cetera*.

Youth (eleven to seventeen years).—At the age of eleven years the child has reached the time of rapid increase in growth in strength and skill, he becomes increasingly aware of his abilities in different directions and begins to apply and develop them.

Activities of a broader range are needed, and games of high skill, organization and team work are called for. At about the age of fifteen years strengthening exercises may be commenced. Postural defects are likely to appear, especially as the different types of young adult begin to emerge.

The major indications for physical education are: (i) maintenance of good posture and balanced muscular development; (ii) the harmonious growth and development of the various body systems, as skeleto-muscular, respiratory and circulatory.

Physical education must at this time take into account particularly the individual needs, and all-round development rather than specialization should be sought. Owing to the lack of endurance and the awkwardness associated with rapid growth, no intensive competitive occupation should be allowed before fifteen years. After the age of twelve years the physical education of boys and girls begins to diverge, for the needs of the two sexes differ. For example, girls need suppleness, grace, sense of rhythm, rather than strength.

Adult.—The adult needs exercise, the maintenance of body suppleness, the perfection of skill and control, endurance and strength. Corrective exercises are not so necessary, and indeed we cannot

achieve much correction, although the little we can obtain may sometimes be of the greatest value.

Most adults benefit by exercise, but this should be regularly taken. The sedentary business man who, after a long period of physical inactivity suddenly takes severe and excessive exercise in the week-end, may do himself harm. After forty to fifty years the adult is losing his elasticity and is as "old as his arteries".

The British report emphasizes that: "Physical education, if it is to be of permanent value to the individual, should be continued under expert guidance beyond the age of leaving school." One of the aims of physical education is then to provide each individual with the knowledge and training wherewith to obtain for himself physical fitness.

Summary.

Physical education forms one of the most efficacious methods of prophylaxis in health and character and worthy use of leisure. A period of school time should daily be devoted to it. Suitable clothes should be worn.

Each school should be supplied with a playground and a gymnasium suitably equipped.

Physical education should be made as attractive and enjoyable as possible for children and should not be forced upon them.

There is need for a greater supervision by the medical profession of this subject and of the training of teachers to teach it, and it should not be abandoned to the empiricism of laymen.

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¹ Hans Hoske: "Die staatlichen Massnahmen zur körperlichen Erziehung der Jugend im Ausland", *Münchener Medizinische Wochenschrift*, Volume LXXXII, June 21, 1935, page 979.

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Reviews.

A NEW TEXT-BOOK OF MEDICINE.

THE publication of a complete single volume text-book of medicine by a new author in this field is an event of interest, but such a work is to us doubly interesting when it comes from one of the Dominions and is of conspicuous merit. "The Practice of Medicine" of Professor J. C. Meakins first saw the light towards the end of last year, and though published in the United States, it is the work of a distinguished Canadian, who is the professor of medicine in McGill University, Montreal.¹ The book is an ambitious one, for, with the exception of the sections on the diseases of metabolism and ductless glands, of the urinary system and the nervous system, in which he has enlisted the aid of several collaborators, the author is responsible for the whole volume and has impressed upon

¹ "The Practice of Medicine", by J. C. Meakins, M.D.: 1936. St. Louis: The C. V. Mosby Company; Melbourne: W. Ramsay. Super royal 8vo. pp. 1357, with 505 illustrations, 35 of which are in colour. Price: 55s. net.

it a distinctive style. There is a certain advantage in not being bound by tradition, for when a medical author undertakes the revision of a well-known work he cannot depart to any great extent from its general scope and arrangement. Meakins is not so bound, and it is evident that he has set out to consider disease from the standpoints of the disturbances of the essential mechanisms of the body and of the symptoms to which these disturbances will give rise. His introductory chapter makes this clear, and in it he uses an analysis made from the chief presenting symptoms complained of by one thousand patients of average type. This insistence on symptoms has led the author to include the descriptions of certain conditions in those sections of the book dealing with the particular system mainly affected, a method not always consistent and occasionally confusing, but one that has certain advantages. Thus rheumatic fever is particularly linked with the infections of the naso-pharynx and mouth; typhoid fever, cholera, undulant fever and the dysenteries are linked with the diseases of the alimentary tract, and the various forms of meningitis with the diseases of the nervous system. The author's physiological bias is probably responsible for the particular excellence of some sections of the book: the disturbances of respiration; cyanosis; cardiac failure, which is approached both as regards its nature and its treatment through a consideration of the intimate metabolism of cardiac muscle; the discussions on circulatory failure; these are handled after an ideal fashion. In fact it will be found that in particular respiratory and cardiac diseases in this book are distinguished by this clear and logical method of handling. It is perhaps surprising to find affections of the coronary arteries described next to peripheral vascular disease, under the general heading of local visceral vascular disease, since its importance puts it in a class almost apart; but this is only a matter of arrangement. Another instance of arrangement which might be bettered is seen in the section of subdural hæmatoma, which is described under the outworn title of "Pachymeningitis Hæmorrhagica Interna". This subject is referred to briefly later, but it deserves a more adequate description. The syndrome associated with subarachnoid hæmorrhage might also be given a little more space. While referring to nervous diseases it may be remarked that this section includes brief but adequate references to modern methods of investigation, and a simple systematic and symptomatic description is used without undue detail of the more academic kind. Renal diseases have rather overwhelmed some authors, but Meakins refuses to be drawn into a pathological maze and confines himself to a clinical classification which is commendably simple and which lends itself to what is the chief end of medicine—bedside practice.

Metabolic and endocrine diseases are handled with particular clarity; in one instance at least the author could hardly be clearer or more insistent, where he utilizes a large capital type to announce that anterior pituitary preparations are inert when given by mouth. His statement about the indications for pituitary gland therapy might, however, be more definite. Diabetes is well dealt with, with a section on the use of protamine insulinate and an enthusiastic advocacy of the modern high carbohydrate diets. In the section on digestive diseases regional ileitis receives adequate notice, as its recent literature demands, though perhaps chronic gastritis is, though a somewhat vague clinical concept, worthy of fuller treatment. Many readers will feel surprised when they learn that Meakins is not only chary of intensive treatment of peptic ulcer by alkalis, but that he believes they should be used only as symptoms of discomfort arise. This opinion is perhaps due in part to the author's keen physiological conscience and his natural aversion to running the risk of alkalosis; but it will give heart to those who have always been somewhat sceptical of the usual text-book accounts of the mechanism of the alkaline treatment of ulcer. Hepatic disease is well described. We agree that chronic hepatitis is perhaps a better title than cirrhosis, but it is hard to see why chemical hepatitis and the so-called "acute yellow atrophy" could not be grouped together under a general heading. The section on collac

disease is not satisfactory nor even accurate; this disorder is hardly an intestinal intolerance of carbohydrate, nor is it known as "Guys" disease; Guy is surely a misprint for Gee. Acute spirochetal jaundice is a disease of great interest in some parts of Australia, and for this reason we should like to see a clearer recognition of its widespread distribution and its nature. No man could write a book of 1,300 pages on so vast a subject without being guilty of some omissions; perhaps it is as well, for this gives the critic an opportunity not otherwise easy to find. We notice that the heterophile antibody reaction is not mentioned in the diagnosis of glandular fever, nor mandelic acid therapy in urinary infections, nor are adequate details given of the methods of administering oxygen. Some of the author's opinions are refreshing, but provocative. The use of cold baths in typhoid he stigmatizes as a barbaric and brutal practice; Queensland authorities may differ. The enthusiastic praise of surgical treatment in ulcerative colitis will probably please only some surgeons; pediatricians will, however, not all agree that vaccines are not valuable in pertussis, nor would all physicians hold somewhat cautiously conservative views on X ray treatment in Hodgkin's disease. And has the antitoxic serum revolutionized the treatment of scarlet fever?

But these criticisms concern only minor points, many of which are matters of personal opinion; in any case, it is a pleasure to read a book by an author who does not hedge and who does not hesitate to express his personal opinion.

In general this is an excellent text-book, worthy of taking its place with "Osler" and "Taylor". The shadow of older books on medicine does not fall across its pages, which have an individuality and vigour that combine with its scholarship and accuracy to make it an outstanding work. The book is finely produced, and though it is perhaps a trifle large and heavy for the lethargy of the postprandial hours, its clear, firm type and its flowing style make it easy to read. It is profusely illustrated; many excellent plates and photographs are culled from a number of sources, many others are original, and, though some of the reproduced skiagrams are lacking in clear detail, the appeal to vision, recognized by the author in his preface as so important in teaching, greatly enhances the value of the book.

DISEASES OF CHILDREN.

In a volume which is apparently intended to be the first of a series, Dr. R. S. Frew has adopted a new method of dealing with disease in childhood. Relying on the case records of his hospital out-patient clinic, he classifies and deals with the ailments of infants from birth to one month, from one month to six, from six months to a year, holding that certain diseases appear only at certain ages or at least produce different symptoms at different ages. With the records of almost nine thousand cases he has had a wealth of valuable clinical material to draw upon. While the method has much to recommend it, in the book itself there is much unnecessary repetition.

Again Dr. Frew has put forward the theory of "hyperphlebemia" to account for the hemorrhagic cerebral and many other lesions of early infancy. By this is meant the forcible over-distension of the infant's venous system during labour and actual birth; and the mechanism is described in detail. While perhaps accepting the theory to explain certain cases, the reader will find it difficult to group under this common cause such different conditions as cretinism, mongolism, asthma, rickets, diabetes. The treatment of such an important condition as "hyperphlebemia", or rather of "white asphyxia", which is one of its evidences, is by blood-letting, and therefore contrary to the accepted methods of other writers.

The chapter on infant feeding is a commonsense one, but is spoilt by a stupid misprint in the main feeding table. In spite of several defects, there is much of value in the book, especially in its first period.

¹ "Disease in Childhood: A Clinical Study", by R. S. Frew, M.D., F.R.C.P.: 1936. London: Macmillan and Company, Limited. Royal 8vo, pp. 684, with illustrations. Price: 30s. net.

A TEXT-BOOK OF OBSTETRICS.

THE members of the clinical staff of Queen Charlotte's Hospital have now produced the fourth edition of their text-book, a book which has, in the previous editions, proved to be one of the most popular text-books on obstetrics printed in England.¹ Following in the steps of the previous editions, the last of which was produced three years ago, it represents the views held and the methods practised by those connected with the staff of this large and very highly respected hospital.

The most important addition to this edition concerns the work of Colebrook on puerperal sepsis. Owing to the fact that the members of the staff of this hospital treat a very large number of septic patients in their up-to-date special department they have had excellent opportunities of research in puerperal sepsis, and their views on this condition must be respected. The chapter on puerperal sepsis is excellent.

Early laparotomy in general peritonitis is not advocated nearly so strongly as it was in previous editions. It is only during the last eighteen months that the members of the staff have changed their views concerning this part of the treatment in early peritonitis.

We note that in the chapter on pelvimetry the staff stresses the fact that external measurements, although still used in many other clinics, are considered by them to be of little practical value, and reliance is placed on vaginal examination so far as the actual size of the pelvis is concerned.

Another point, differing from that used in most other clinics, and one which seems to be well worth adoption as a routine method, is that spinal anaesthesia is used for all destructive operations on the fetus, since it tends to minimize the shock so often manifested in these cases.

In the chapter on Caesarean section we have been struck with one part which seems somewhat inconsistent. Interrupted sutures are recommended in the upper type of Caesarean section to avoid the possibility of rupture, especially in infected cases, yet for the lower uterine segment operation, which is so frequently used in potentially infected cases, a continuous and single muscular layer is advised. Most authorities now appear to recommend a double muscular catgut layer, one of continuous catgut and the other interrupted, for the suture of the incised muscle in the lower uterine segment operation.

Actually there are very few points to criticize in this excellent text-book. The diagrams are numerous and well up to the usual English text-book standard. We can have no hesitation in strongly recommending this book on obstetrics for the use of both student and general practitioner.

BASAL METABOLISM.

THE third edition of "Basal Metabolism in Health and Disease"² is a welcome and worthy successor to the previous edition published in 1927. Though rewritten, enlarged and brought up to date, the general character has been preserved, but there is an increased tendency to depart from the confinement of the first edition, which we hope will not be further developed in future editions. This book has been valuable on account of the complete confidence its readers have placed in the opinions expressed, because it was recognized that each chapter had the hall-mark of Du Bois's personal experience. New chapters, such as the one on the mechanism of loss of weight from the body, are to be encouraged as falling into line with the general purpose of the first edition. The contents of this chapter are largely a development of work done in the author's own laboratory, and Du Bois is

¹ "The Queen Charlotte's Text-book of Obstetrics", Fourth Edition, 1936. London: J. and A. Churchill Limited. Medium 8vo, pp. 685, with four coloured plates and 291 text-figures. Price: 18s. net.

² "Basal Metabolism in Health and Disease", by E. F. Du Bois, M.D.; Third Edition; 1936. London: Baillière, Tindall and Cox. Royal 8vo, pp. 494, with 98 illustrations. Price: 22s. 6d. net.

to be congratulated on tackling such an important and difficult problem. The above criticism was levelled more at the section on the basal metabolism of tissues and the work on creatin metabolism in hyperthyroidism, which the author has had written by others. The science of metabolism now covers such a wide field that it is impossible for any individual to have personal experience over the whole of it; but rather than see this very lovable and practical book grow into an unwieldy symposium, we would prefer to see the development of companion books of a complementary character.

To deal more particularly with the subject matter: in the present edition there is a chapter of twenty-six pages on "The Mechanism of the Loss of Heat from the Body". This subject is so important and is so well handled that it will be discussed in the editorial columns of this journal and will not be considered further here.

The chapter on the theories concerning the basal metabolism has been rewritten and enlarged, but we find ourselves no nearer the solution of why heat production is proportional to surface area. The impossibility of relating surface area to active protoplasmic mass has been stressed in even more detail than in the previous edition. In this same chapter there is a section on the basal metabolism of tissues, compiled by Dr. H. B. Richardson, which is a brief summary of work done, mostly on surviving tissues.

In the chapter on the general principles of respiratory apparatus and the methods of calculation the author continues to stress the very large error that is possible if the output of carbon dioxide is used to measure the basal metabolism in clinical material. Criticism of a method by such an authority as Du Bois cannot be indefinitely ignored.

In the chapter on "Factors which Influence Normal Basal Metabolism" the author has introduced Boothby's probability of normality table, by which the probability of any result being a figure normal for the individual, even though outside the normal range, can be determined. It is doubtful whether this table will prove of clinical value. The opinion of the person carrying out the test as to whether or not it was a satisfactory experiment must remain the best court of appeal. In the same chapter the new standards from the Mayo Foundation have been introduced. These figures are somewhat lower than the Du Bois standards, but this was to be anticipated.

In the chapter on diseases of the thyroid Du Bois has introduced a review by Dr. Ephraim Shaw on the subject of creatin metabolism in thyroid disorders.

No modern physician can afford to leave this book unread. Clinical acumen, no matter how highly prized or developed, depends on the recognition of changes, primarily metabolic in origin, which manifest themselves as physical signs and symptoms. Giving a label to a disease that manifests certain signs and symptoms can give little satisfaction if the nature of the underlying changes is not understood. Life is complex and its secrets are well guarded; but this lends zest to the search. Only the indolent continue to practise medicine as an art and ignore the scientific basic facts revealed in books such as this.

MUSCLE REEDUCATION.

So much newspaper publicity has been given during the past year or two to the work of Sister Kenny in the treatment of patients suffering from anterior poliomyelitis that medical practitioners will welcome the appearance of her book, "Infantile Paralysis and Cerebral Diplegia", with its clear-cut account of her beliefs and of her methods as carried out at present.¹

In discussing this book it is necessary to dismiss from the mind all irrelevant considerations of the subject and any political associations that may have grown up round

¹ "Infantile Paralysis and Cerebral Diplegia. Methods Used for the Restoration of Function", by Elizabeth Kenny, with a foreword by H. J. Wilkinson; 1937. Australia: Angus and Robertson Limited. Demy 8vo, pp. 143, with illustrations. Price: 21s. net.

it in the popular imagination. That the author of the book has no medical qualification does not matter: she has by her keenness and insistence focused attention on what has become known as her method. She has compelled the attention of those in high places, and the reports of her success have given hope to many sufferers. Though extraneous considerations should be dismissed from the mind, it is necessary to remind readers that the Queensland Government appointed a commission composed of medical men to investigate her methods and that no report has yet been forthcoming. A committee was also appointed at the Royal North Shore Hospital of Sydney for the same purpose, but its findings have not been published.

The book is obviously written for medical readers, but as it will doubtless fall into the hands of many non-medical people, attention must be drawn to the fact that many persons who become affected by anterior poliomyelitis recover without any residual paralysis. There is in the popular mind an idea that infection with this disease always spells paralysis for the sufferer. Medical practitioners know that nothing could be further from the truth; they also know that many muscles that are affected recover their function provided they are not subjected to maltreatment. The view is commonly held among physiologists and neurologists that (to quote the foreword by Professor H. J. Wilkinson) each motor cell of the cord is connected with a group of muscle fibres, forming with them a discrete unit. According to this view, the destruction of the motor nerve cell would cause a functional destruction of the whole unit, with resulting atrophy of the muscle fibres concerned. Professor Wilkinson advances an hypothesis based on his researches according to which recovery might take place and function be restored to the paralysed muscle even though the presiding nerve cell had been destroyed. He holds that axones of the motor cells form in the periphery a plexus and that the processes which pass to the muscle fibres pass out of this plexus. In other words, destruction of a nerve cell would not necessarily mean the isolation of all the muscle fibres with which the destroyed cells had previously been directly connected. As far as we can gather, Professor Wilkinson is quite alone in holding these views; if they were confirmed by other observers, they would revolutionize much of present-day neurological teaching. By expressing his views in this context, Professor Wilkinson has produced what appears to be an excellent piece of special pleading for the cause of Sister Kenny.

Of the book itself, we must state at once that no one can read it without being impressed by the strong spirit of optimism and enthusiasm which Sister Kenny infuses into her treatment of paralytic conditions and on which she insists in her chosen co-workers. Without this enthusiasm any form of treatment of these patients is likely to fail; the enthusiasm must be transmitted to the sufferer, for his ultimate recovery is largely, almost wholly, dependent on the degree of cooperation of the patient with the person carrying out the treatment. Indeed, the maintenance of a bright mental outlook is the first principle on which Sister Kenny bases her treatment. The other principles are the maintenance of "impulse", hydrotherapy and remedial exercises, maintenance of circulation and avoidance of generally accepted methods of immobilization. Much that the author writes about keeping alive and fostering the "impulse" might serve as an example to all workers in this field. We do not know what influence a constant mental stimulus may have on a neurone or axone recovering from an onslaught by the poliomyelitic virus, but it would be foolish to deny categorically that it had any beneficial effect. As far as muscular reeducation and hydrotherapy are concerned, Sister Kenny has introduced no new principle. The methods advocated by her are used by competent orthopaedic surgeons. Where they have been used consistently and with minute attention to detail, results comparable with those claimed by Sister Kenny have been obtained. In certain centres the use of hydrotherapy has lapsed; Sister Kenny's urgent advocacy of its use and the prominence that will certainly be given to it by the appearance of her book, may result in its renewed adoption.

The reeducative exercises are rather disappointing in their lack of variety, and in those described a great deal of reliance seems to be placed on the support of the hands of the reeducator who holds the limb. Most workers in poliomyelitis would agree that the use of the reeducation board is more suitable when the muscles are capable of minimal contractions only. In the section on the treatment of spastic patients, Sister Kenny shows that she has a good grip of the reeducative problem, and it is this part of the book that has the greatest appeal—the book, in fact, is best regarded as a practical manual of muscle reeducation. In the section on scoliosis the exercises described are good, but we should like to see the few depicted exercises amplified by the addition of such excellent compensation exercises as Steindler describes in his book on scoliosis. We should all like to prevent increase of deformity in severe cases of paralytic scoliosis, without resorting to spinal supports; but when exercises fail to achieve this object, most workers in this field find supports a necessary adjunct to active treatment.

This brings us to the point at which we think the book fails and is calculated to be harmful if its precepts are followed in fresh infections. Sister Kenny apparently thinks that in the accepted, or as she calls it the orthodox, treatment of poliomyelitis the patient is fixed in a splint "day in and day out". She will not have immobilization in any shape or form, for she cannot reconcile the use of splints in cases of paralysis with the principle of maintaining in the patient the impulse to use the muscles again. She writes: "In many cases it is obvious that standard treatment has defeated its own ends by suggesting loss of power, and that the impulse has become reduced or dormant". This objection would be quite justified if continuous and uninterrupted splinting were insisted on by orthopaedic surgeons. On physical grounds she objects to splinting because it causes stiffness of joints and interference with the circulation. Most medical practitioners would agree with her if splinting and splinting alone constituted the sole "orthodox" method of attacking the problems of acute poliomyelitis. It must suffice to state that during the period of muscle hyperalgesia which is a common feature of some cases of anterior poliomyelitis, and which may last from a few days to a few weeks, complete rest is essential. Even the gentlest handling of the limb during this period accentuates the pain. Injudicious or rough handling in attempts at reeducation or massage has been known to prolong this stage for months; it would certainly defeat its own object. Relief is immediate when the limb is splinted. As has already been stated, to discard splinting as a routine measure would be disastrous. In spite of the reasons advanced by Sister Kenny for her attitude regarding splints, we must conclude that in this section of her book she has done a disservice to the cause she espouses so earnestly; the same could, of course, be said of any medical practitioner who was foolish enough to prolong unnecessarily the stage of immobilization.

A tribute must be paid to Sister Kenny for the way in which she appears to be able to insist on frequent treatment of patients during reeducation of their muscles. It is to be hoped that hospital authorities will take a lesson from her in this matter.

So far no mention has been made of the question whether the results obtained by Sister Kenny are as good as or better than those obtained by other workers. The results obtained by reeducation of muscles will vary directly with the time, care and attention that are given to the patients. Whether paralysed muscles have been reactivated we have no means of determining. Many of those reporting good results are incompetent observers and no patient's word can be taken for this kind of thing. If and when the commission in Queensland makes its report, an answer may be given to this question.

Sister Kenny's book is well printed and has been carefully edited. The illustrations are well reproduced. A mistake occurs in the legend to the lower of the two pictures facing page 6. The words "Elizabeth Kenny Clinic, Townsville, North Queensland" should read: "The Queen's Hotel, Townsville, housing the Elizabeth Kenny Clinic." There is an index which is rather inadequate.

The Medical Journal of Australia

SATURDAY, MAY 8, 1937.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction, are invited to seek the advice of the Editor.

THE MEDICAL RESEARCH COUNCIL OF GREAT BRITAIN.

THE Medical Research Council of Great Britain has issued its report for the twelve-month period October 1, 1935, to September 30, 1936; the report was presented to Parliament in February, 1937. The activities of the Medical Research Council are so widespread, and it supports either wholly or in part so many workers whose interests are extensive and varied, that its report gives an excellent idea of most of the work carried on in the Old Country, and is therefore eagerly awaited. This year it will have an added interest for Australian workers, for they are waiting hopefully, and with a certain justifiable impatience, to hear that their own National Health and Medical Research Council is to be provided with funds to enable it to carry out its programme. They know that work is waiting to be done in Australia and that there are men and women able and willing to do it.

The grant-in-aid provided by Parliament for the Medical Research Council for the year was £165,000,

the same sum as in the previous year. Of this amount £9,500 was devoted to expenses of the Council, of the administrative officers and of the staff, and to travelling expenses. The sum of £58,500 was provided for the expenses of the National Institute for Medical Research at Hampstead and of the farm laboratories at Mill Hill in association with it, for the salaries of the scientific staff and the expenses of the research work done by them or by other temporarily attached workers. Further, the sum of £97,000 was provided for research grants to scientific workers, and for the expenses of their researches at universities and other centres in the United Kingdom, for research work in clinical medicine, for various statistical inquiries, for work in relation to tropical diseases, and for investigations of the Industrial Health Research Board. The funds of the Medical Research Council were augmented from several sources that are named in the report, but the amount of the augmentation is not specified. Close touch has been maintained by the Council with the Ministry of Health, the Department of Health of Scotland, the Home Office and the Mines Department, and in matters relating to tropical medicine with the Colonial Office; it has also maintained its relationship with the international health work carried on by the League of Nations. During the past year a Tropical Medical Research Committee has been appointed to advise the Council so that it may give more assistance in tropical research than has hitherto been possible. In addition, what is described as "effective consultation on all scientific and financial questions of common interest" has been maintained between the Medical Research Council and sister organizations working under the committees of the Privy Council for scientific and industrial research and for agricultural research.

In the small space available it is quite impossible to give a satisfactory account of the work accomplished by Medical Research Council workers during the year under review. Some of the work has been of outstanding importance and will probably be discussed on subsequent occasions. Special attention should be drawn to the work on influenza,

on nutrition, on the prevention and treatment of puerperal fever, on epidemics, on artificial pneumothorax in pulmonary tuberculosis. Separate sections are devoted to the work at the National Institute for Medical Research, to the determination of biological standards and the methods of biological assay and measurement, to clinical research units, to external research schemes, and to industrial health. The interest of the practising members of the profession will lie chiefly perhaps in the work of the clinical research units, of which there are now three—one at University College Hospital, one at Guy's Hospital, and one at the National Hospital for Diseases of the Nervous System. The gift of Lord Nuffield of two million pounds for research and post-graduate teaching at the University of Oxford is, however, the most important event of the year. It is to be hoped that one of the effects of this foundation will be the creation of post-graduate fellowships in clinical medicine, and that this will prevent the side-tracking to more lucrative fields of private practice of men and women who are suited for careers of research. The Medical Research Council's report is published by His Majesty's Stationery Office and is sold for three shillings and sixpence; we commend its perusal to all who are interested in the future of medical research in this country.

Current Comment.

EPILEPSY IN GENERAL PRACTICE.

THROUGHOUT the ages the lot of the epileptic has been a miserable one. By the laity he has been regarded as the victim of an hereditary and incurable disease tending to be associated with dementia and the development of criminal tendencies; and the medical profession, through a lack of comprehension of causal factors, has shelved its responsibilities as to treatment and general supervision of epileptic patients. According to R. G. Armour,¹ the policy of informing the relatives of an epileptic patient that "he will grow out of it" is dangerous and ill-advised, since many convulsive disorders of infancy lay the foundations of what this writer calls an "epileptic potentiality". No less to be condemned is the habit of regarding epilepsy as exclusively a nervous disease, since this outlook

only confuses the examining medical man who is unable to discover abnormal signs in the central nervous system.

The truth is that epilepsy has important metabolic and constitutional relationships. The convulsive disorders of early life, as stated, are often followed by confirmed epilepsy if the gastro-intestinal upsets associated with them are not efficiently treated. The same dictum is true of the cerebral complications of mumps, whooping cough, measles and the cerebral form of acute anterior poliomyelitis. The effect of prolonged sunbathing is occasionally to produce headache, dizziness and delirium, which are evidences of vascular disturbance in the brain; amongst these are congestion, oedema and even small hemorrhages. Epilepsy has been known to follow the development of these lesions. The statistical evidence seems to indicate that heredity plays a smaller part in the transmission of epilepsy than was formerly imagined. Armour, with others, thinks that the danger of transmission is trivial, but it is admitted that there seems to be a greater incidence of nervous diseases amongst the relatives of epileptics than amongst the population as a whole. It is very likely that in the past too heavy an emphasis has been laid upon head injuries as causal factors in the production of epilepsy. The convulsions which follow trauma of this kind are very seldom frequent, but occur as isolated attacks and at long intervals, during the period of a year or so after the injury. If, however, the epileptic seizures are frequent and severe, gross cerebral damage is usually demonstrable by the use of encephalograms or ventriculograms. Fits of Jacksonian type should always give rise to the gravest suspicion of such injury or of some other cerebral condition, such as tumour, requiring surgical treatment. The valuable aid of encephalograms or ventriculograms in the diagnosis of these conditions far outweigh any risks attendant upon their employment.

Both alcoholism and syphilis are considered to bear a negligible aetiological relationship to epilepsy, and the same may be said of kidney disease, except in cases of uræmia and eclampsia. But it is important to remember that the frequency of epileptic fits may be increased in epileptics, free of all renal damage, by the drinking of large quantities of fluid (in quantities of the order of one hundred ounces per day). Conversely, the incidence of the seizures may be greatly lessened by restriction of the fluid intake. The bearing of the body water-balance upon epileptic manifestations has previously been the subject of discussion in these columns.

To confine the term epilepsy within the limits of a concise definition is a difficult task, since its most striking signs are but the evidences of many different diseases or abnormalities. As contrasted with the picture of hysterical seizures, those of epilepsy are sudden in their onset and are not preceded by emotional outbursts, though these are not uncommon once an attack is over. The classical features of an epileptic display, faecal and urinary incontinence or tongue-biting, may take place only

¹ *The Canadian Medical Association Journal*, February, 1937.

once or twice during the lifetime of a confirmed epileptic. The diagnosis of post-epileptic automatism can be made with certainty only if the patient's antisocial actions are habitual, simple in their nature and free from the suggestion of conspiracy. Physiologically, the general belief is that epileptic outbursts are associated with cerebral ischaemia which may be either local or diffuse; this view is strengthened by the statement that some observers have noted a condition of spasm in the retinal vessels during the currency of an attack.

In treatment, all efforts should be made to render the patient's existence as like as possible to that of his fellow men; education and fitting occupation do much to prevent a gloomy brooding over the malady. For reasons hinted at above, the restriction of fluid intake is to be recommended. The widely advertised ketogenic diet would appear to be impossible for the treatment of juvenile patients outside a hospital or in the case of adults who wish to continue at their work. In any event, the benefits of this diet would appear to depend on the dehydration which it induces. It may be said that the introduction of "Luminal" (phenobarbital) is an important advance in modern therapeutic methods. Since the use of this drug has displaced the large doses of bromides formerly given, the clinical picture and prognosis of epilepsy has changed very much for the better. This is evident from the fact that in great numbers of instances the seizures are controlled by doses of "Luminal" as small as one and a half grains given only once a day. In more obstinate cases a combination of "Nembutal", or of small doses of the bromides and of chloral hydrate, with the "Luminal" has in Armour's experience been strikingly successful. But since epilepsy is, of itself, not a disease, the question as to whether it is curable cannot be answered in downright fashion; some patients make no favourable response to any treatment, but the condition of the great majority can be so bettered as to enable them, today, to lead lives filled with a usefulness and contentment undreamt of a few years ago.

THE TREATMENT OF IMPERFECT DESCENT OF THE TESTES WITH GONADOTROPIC HORMONES.

T. W. MIMPRESS,¹ in recording the results of treating with gonadotropic hormones a series of patients suffering from imperfectly descended testes, begins his remarks as follows: "At present this method of treatment is still in the experimental stage, and it is probable that more prominence is given to the successes than to the failures in treatment." Since the introduction of this form of treatment by Schapiro, in 1930, considerable difference of opinion is to be found in the literature contributed by authorities on the subject. Mimpres surveys the results obtained in twenty patients with undescended testis, who sought relief in the surgical unit of Saint Thomas Hospital. Six of these

patients had been the subjects of unsuccessful operations and fourteen had received no previous treatment. The preparation used was "Pregnyl" (Organon Laboratories), administered twice a week into the buttock in doses of 500 rat units. The number of injections given varied from eight to forty. Only four patients of the fourteen previously untreated derived benefit from the procedure. In all four the most noticeable feature was the general underdevelopment of all the external genitalia, not only the testes. In each case hypertrophy of these organs followed the course of injections. Treatment of the remaining ten patients was unsuccessful. In some of these, subsequent surgical operation revealed the presence of fibrous bands amenable only to operative measures. Of further interest was the partial success, as judged by some genital hypertrophy and slight growth of pubic hair in an example of Fröhlich's syndrome. In most instances in which external genital development was regarded as satisfactory, further hypertrophy in this region followed the injections even when the testes failed to descend. Two successes followed previously unsuccessful operative interference. The increased size of the testes and scrotum appeared to be the factor favouring descent.

This question of general genital hypertrophy has not hitherto been emphasized in the literature. It occurred in every instance except one in this series. It may be considered a definite objection to the treatment, as it is a much more constant result than testicular descent. A further danger to which a number of authors have drawn attention, as a result of both clinical and experimental observation, is atrophy of the testis subsequent to enlargement. Such a sequela was observed in one patient in this series. For this reason and because of the encouragement of precocious sexual maturity by the treatment, the age of nine has been generally agreed upon as the earliest at which treatment by gonadotropic hormones should be started. It appears, therefore, that a subtle but definite danger lurks behind this mode of treatment, and that it is even contraindicated when any part of the genital apparatus is already normal in development; for example, a unilateral retained testis. It is a promising form of therapy, however, for children both of whose testes are retained and definite genital underdevelopment is present. It would appear worthy of retention as providing more hope of benefit to children exhibiting Fröhlich's syndrome; and it is hoped that reports will be forthcoming concerning its results in this condition, which remains so completely uninfluenced by other forms of endocrine therapy.

DERMOID AND EPIDERMOID TUMOURS OF THE CENTRAL NERVOUS SYSTEM.

The results of an investigation of fifteen congenital epithelial tumours of the central nervous system, verified microscopically, have been pub-

¹ *The Lancet*, February 27, 1937.

lished by J. G. Love and J. W. Kernohan.¹ These growths have been variously termed epidermoids, dermoids, cholesteatomata and pearly tumours. They state that the term cholesteatoma is unfortunate, as these tumours are totally different from the so-called cholesteatomata of the lateral ventricles of horses. The cholesteatoma of the ear is also different, it being usually the result of chronic infection in which the products of inflammation accumulate and erode the bone. There is no squamous epithelium surrounding the mass. This study comprised fourteen intracranial tumours and a dermoid cyst implicating the spinal cord.

Love and Kernohan remind us that pearly tumours are congenital newgrowths, and, as they originate in misplaced or aberrant epithelial tissue, the foundation for the tumours is laid early in intrauterine life. Increase in size is very slow and insidious, and signs and symptoms indicating their presence may be absent. They may be accidentally discovered at autopsy. On the other hand, there may be early manifestations because the growth encroaches on an important structure, such as the optic nerve, or as a result of interference with the circulation of the cerebro-spinal fluid. When symptoms arise, they are those of any tumour of similar size and situation. Love and Kernohan could trace only one instance of an intradural epidermoid being diagnosed before operation. Extradural and intradiploic epidermoids often yield a characteristic skiagram, so that diagnosis may readily be made. Intraspinial epidermoid tumours are not diagnosed before operation or autopsy. They are often associated with such congenital conditions as *spina bifida*.

The diagnosis of intracranial epidermoid is that of any similarly situated neoplasm, but it may be more difficult on account of the extreme slowness of development of the tumour. Ocular changes, such as defect in the visual field, may indicate the situation of the growth. An injection of iodized oil may be required to localize an intraspinal congenital epithelial tumour. Ten of the tumours reported by Love and Kernohan were definitely epidermoids. These were all intracranial—seven were intradural and three extradural. Five were dermoids. Of these, three were intracranial and intradural; one was intraspinal, intradural and intramedullary. The remaining tumour was extracranial, but, on account of skull erosion and the presence of structures in the tumour pointing to an origin common to that of the intracranial dermoids, it has been classed as an intracranial tumour. In one case there seemed to be a direct relationship between trauma to the skull and subsequent development of a neoplasm at the site of injury. Trauma has been considered important in the aetiology of these tumours by allowing remnants of the epidermis to be carried into the deep layers of the scalp or even

between the inner and outer tables of the skull. These remnants could act as an *Anlage* of dermoid or epidermoid tumours. Another of the cases in this series yielded a growth which was a typical epidermoid. The case was of particular interest as the patient's appearance, low blood pressure and low basal metabolic rate suggested hypopituitarism. Ophthalmic and X ray findings of a lesion about the *sella turcica* suggested a lesion of the pituitary. As Love and Kernohan remark, exact diagnosis was impossible until the lesion was revealed at operation.

Love and Kernohan differentiate epidermoid from dermoid cysts. They consider those tumours in which only squamous and basal type of epithelium are present to be epidermoid tumours. Cysts with other elements of normal skin, such as sweat and sebaceous glands, hairs or hair follicles, they designate dermoid cysts. They divide dermoid and epidermoid tumours of the nervous system into: (a) those found in the cerebellum; (b) those found in the spinal cord; (c) those originating in the baso-temporal region and which extend into the temporal lobe, into the suprachiasmatic region or even into the frontal lobes; and (d) those found between the tables of the skull. Love and Kernohan consider squamous epithelium that can be identified as such to be necessary for the diagnosis of an epidermoid tumour. Squamous epithelium has, Love and Kernohan state, certain features by which it may be recognized. The presence of keratohyaline granules is necessary. These are found only in the superficial layers of squamous epithelium. Cornification of the superficial layers is a constant feature, and during the cornification the keratohyaline granules disappear. The cornified cells are then desquamated and constitute the contents of the cysts. Cholesterol crystals are rarely found in epidermoids. Basal cells are often associated with squamous epithelium, but they are not always present in epidermoid cysts. When they are seen, other elements characteristic of skin usually are present and the growth is a dermoid. Whether the differentiation insisted on by Love and Kernohan between dermoids and epidermoids pathologically can be sustained has yet to be determined. The authors are certainly explicit in their belief. The only change in the brain resulting from the tumour is a local atrophy attributable to the pressure of the expanding cyst. Love and Kernohan encountered in one case a large number of daughter cysts within the main cyst. They have no explanation to offer regarding the condition. Dermoid or epidermoid tumours must, they state, be differentiated from other neoplasms of the brain or cord, such as adamantinomatous or cysts of Rathke's pouch. These have a characteristic stroma with numerous *Anlagen* of teeth. Abscess of the brain also must be considered, as well as echinococcus cysts and gliomatous cysts the walls of which are lined, not with epithelium, but with neoplastic glial cells. Surgical removal in many cases is possible and the

¹ The Journal of the American Medical Association, December 5, 1936.

results are good. Love and Kernohan have given an excellent dissertation on this subject. As regards the relation of trauma to the tumours, they do not feel that injury in itself is sufficient to cause the growth, and we can unhesitatingly agree with such pronouncement.

THE SURGICAL TREATMENT OF ARTERIAL HYPERTENSION.

HIGH blood pressure, to use one of the popular names for what is a familiar though obscure syndrome, has recently been the subject not only of the usual extensive medical observation and inquiry, but also of what may be regarded as experimental surgery. Irvine H. Page and George J. Heuer, in a review of some of these surgical results, remark that since no medical treatment is known that will effect a substantial and permanent lowering of the blood pressure of a patient suffering from essential hypertension, surgical measures deserve a trial.¹ At the outset of their article they discuss the problem of the propriety of lowering the blood pressure at all. This is important, for it is often urged that the raised pressure is necessary for the body, but they state that in their clinic temporary reduction of the pressure with drugs has not been found to cause any disturbances of metabolism or tissue nutrition. They admit that in coronary sclerosis a lowering of the diastolic blood pressure might be disadvantageous and predispose to anginal seizures. However, their contention that continued hypertension of itself causes vascular damage is undoubtedly based upon fact. Before their results are summarized, it must be pointed out that there are two features of a well-advanced syndrome of essential hypertension, namely, an organic sclerosis of certain parts of the vascular tree and a state of spasm in the muscular coat of these vessels. Thus it is advisable to attempt to form some idea of the relative importance of these two factors in any given case, as so clearly shown by Allbutt a good many years ago, when he distinguished the essentially hypertensive stage of arteriosclerotic vascular disease from the involved later phases, with their attendant cardiac and renal damage.

The particular surgical procedure that is the subject of the communication by Page and Heuer is section of the anterior spinal nerve roots from the sixth thoracic to the second lumbar roots inclusive. This operation, sponsored by Adson and Brown, is designed to affect the splanchnic arteries. Stimulation of the splanchnic nerves produces a rise in blood pressure by causing contraction of all the peripheral arterioles in this field and by liberating adrenaline through stimulation of the adrenal glands, thus causing contraction of the peripheral

vessels of the whole body. Section of these nerves may be expected to produce the opposite effect, and it is known that spinal anaesthesia may give rise to a conspicuous fall of blood pressure in a hypertensive subject. The objection to this operation is that it is extensive and severe. Under general anaesthesia the laminae of the vertebrae from the first lumbar to the sixth dorsal are removed; the *dura mater* is incised and wide exposure is made of the spinal cord, so that the required nerves may be identified and divided. Division of the digitations of the dentate ligament will allow a certain amount of mobilization of the cord, and each anterior nerve root may then be raised on a hook and cut between ligatures; frequent observations of blood pressure are made meanwhile. Page and Heuer found that in most cases the patients withstood the perils of so heroic a procedure very well; one patient died just after the *dura* had been closed, and one other succumbed to a streptococcal septicaemia. A two-stage procedure is now recommended as being advisable on the score of safety. One other patient in the series of seventeen operated on unfortunately suffered from a transverse myelitis, thought to be due in part to pressure of blood clot; he has made only a partial recovery. Careful studies were made of the renal and vascular functions of all the patients, who were not specially selected as likely to have a favourable outcome. Six patients had a more or less benign condition of long duration, though moderate to severe vascular changes were demonstrable; six were young women who presented the well-known signs of cerebral hypertensive attacks, and the remaining five belonged to the so-called "malignant" class, with rapidly progressing disease. As the authors remark, results are not comparable except within each group. Favourable results have been observed in the first group, though the progress of the disease was unchecked in those with more severe vascular affection. The second group appear to be definitely benefited, but the hypertensive cerebral attacks cannot be said to be controlled. In the last group, those with severe and acutely progressive hypertension, there was evidence of satisfactory improvement of various degrees in two cases, but no result in three. Experimental work on animals shows that lowering the blood pressure by splanchnic nerve dissection is not permanent, and so it will probably prove in the human subject, for Page and Heuer report that a slow rise of pressure recurs over a period of six months to two years in most of the patients. Renal efficiency was unimpaired by the operation, but a temporary disturbance of bladder and bowel function was often seen after operation, due, at least in part, to loss of muscular power in the abdominal wall.

The authors conclude that although the clinical condition of many of their patients has been improved over a rather short period of observation, the ultimate value of this operation in the treatment of hypertension has not been established.

¹ *Archives of Internal Medicine*, February, 1937.

Abstracts from Current Medical Literature.

PHYSIOLOGY.

Simple Disuse Atrophy in the Monkey.

HERMAN CHOR AND RALPH E. DOLKART (*American Journal of Physiology*, December, 1936) have investigated the nature of the histological and chemical changes in simple disuse atrophy of skeletal muscle. Six young *Macacus rhesus* monkeys were employed in their experiment. By applying a body and leg cast, an attempt was made to reduce to a minimum the activity of the gastrocnemius-soleus muscles, although it was realized, of course, that muscles so immobilized were still subject to static activity due to "stretch" and other tonic reflexes. At designated periods of one, two, three, four, six and ten weeks respectively the casts were removed and the gastrocnemius-soleus muscles were dissected from their proximal and distal attachments. It was found that the histological changes consisted primarily of a uniform reduction of the bulk of each muscle cell, especially of the sarcoplasm. It was not attended by any evidence of degeneration or attempts at regeneration. Irritability to electrical stimuli remained unaffected. There was no alteration in the proportions of water and nitrogen content. Simple disuse in these experiments was not associated with any demonstrable changes in the anterior horn cells of origin of the respective nerve supply, and the atrophy of the peripheral musculature due to disuse did not result in any such changes.

The Effect of Haemolytic Substances on White Cell Respiration.

ERIC PONDER AND JOHN MACLEOD (*Journal of General Physiology*, November 20, 1936) have found that certain haemolytic substances, such as saponin, the bile salts, the soaps *et cetera*, affect white cells in much the same way as they affect red cells, the arbitrary criterion of their cytolytic effect being their ability to depress white cell respiration. The white cell suspensions were prepared from rabbit peritoneal exudates. Some eighteen hours before the suspension is required, each rabbit receives about 300 cubic centimetres of sterile 0.95% sodium chloride intraperitoneally; the resulting exudate is very rich in leucocytes, at least 95% of which are polymorphonuclear cells. A suspension containing from 60,000 to 100,000 is prepared, the exact number present being ascertained by counting. The measurements of oxygen consumption were made in respirometers. The amount of cytotoxicity increased as the amount of lysin was increased, and

sufficiently large quantities of the lysins used were capable of virtually abolishing the oxygen consumption. The minimum quantity of saponin required for cytotoxicity was very much greater than that required to haemolyse red cells under comparable conditions. This is not remarkable, for lysis of the red cell is an effect on a surface layer, whereas the material involved in white cell respiration is no doubt distributed throughout the cell volume. After the addition of saponin, the bile salts and the soaps, the white cells show obvious cytolytic changes. The cytoplasm shows no structure, and one gets the impression that it has disappeared, leaving a very prominent nucleus inside an apparently empty space bounded by the cell envelope. There does not appear to be any diminution in the number of the cells. Suspensions of these injured cells show very marked agglutination, both microscopically and macroscopically. The lysin is used up in combining with the white cells in much the same way as it is used up in combining with red cells, and the reduction in oxygen consumption is roughly proportional to the amount so combined. The action of these lytic substances on white cells is in fact very similar to their action on red cells, due allowance being made for the fact that the cytotoxicity of the white cell is probably not an all-or-none process like haemolysis.

Pituitrin Anæmia.

In recent publications E. C. Dodds and co-workers reported a severe anæmia in rabbits after the subcutaneous administration of pituitrin. This anæmia occurred on the fourth to fifth day after the pituitrin was given, and was characterized by macrocytosis, hyperchromia, reticulocytosis and leucocytosis, and an increase of bile in the intestine. They concluded that "the control of blood destruction by the reticulo-endothelial system may be vested outside the system and may reside in the posterior lobe of the pituitary gland". Alfred Gilman and Louis Goodman (*American Journal of Physiology*, February, 1937) consider that before this new function is attributed to the posterior hypophysis, the known pharmacological actions of pituitrin should be examined for their ability to produce such striking effects on the blood. They point out that in order to produce this anæmia Dodds injected a massive dose of pituitrin amounting to 200 pressor units per kilogram of body weight, and that it is unreasonable to attribute to a gland a physiological rôle on the basis of evidence obtained from the injection of a pharmacological preparation of that gland in such large amount. The authors suggest that the well-known antidiuretic action of pituitrin, resulting in body hydration and a decrease in the osmotic pressure of the fluid environment of the red corpuscles, is the most likely explanation of the production of this anæmia. They record

experiments showing that pituitrin anæmia in rabbits is the result of water retention causing blood dilution. In 31 experiments performed on 26 healthy normal rabbits, the animals were injected subcutaneously with pituitrin in the dosage of 200 units per kilogram. Normal rabbits served as controls. Following the injection, the food intake and subsequently the body weight of the animals were considerably reduced. The urine volume of these animals on "wet" diet averaged 500 cubic centimetres a day. This was reduced as a result of the pituitrin injection. Normal renal function was established seven days after injection. The serum osmotic pressure remained low for several days, started to rise slowly with the return of normal renal function, and approached a normal figure ten to fourteen days after the pituitrin injection. The specific gravity of the serum was also lowered. In every experiment there was evidence of an anæmia. Two types of response were observed. In the first there was a reduction in cell count to a level slightly over one million. The onset of the anæmia coincided with the fall in osmotic pressure of the serum. The anæmia persisted as long as the osmotic pressure remained low and the count slowly returned with the restoration of normal renal function. In this type of response it is obvious that there has been an actual destruction of a large number of cells. There occurred a prompt and high reticulocytosis, a temporary neutrophilic leucocytosis, a slight increase in icterus index, occasional slight haemoglobinuria and changes in the blood film. Inasmuch as the return to a normal blood picture depends not only upon the restoration of normal water metabolism, but also on the formation of new cells, it is not surprising to note that the anæmia persisted after the osmotic pressure of the blood returned to normal. In the second type of response the decrease in the number of red blood cells was much less pronounced and can be explained by blood dilution. In this dilution anæmia, inasmuch as there was little, if any, cell destruction, both the osmotic pressure and the cell count returned to normal following the release of the pituitary antidiuresis. The close time relationship between the changes in serum osmotic pressure and cell count, both with respect to onset and recovery of the anæmia, supports the theory of these authors as opposed to the explanation offered by Dodds. In order to obtain more positive proof, the authors attempted to prevent the anæmia following pituitrin injection by procedures which did not allow blood dilution. Animals were placed on an oats diet with water *ad libitum* for one week to allow for intestinal absorption and renal excretion of residual fluid from the previous wet vegetable diet. They were then dehydrated for two days and the blood picture was ascertained. Following

this they were injected with the usual dose of pituitrin, replaced on the oats diet, and allowed water. Dehydration resulted in a high serum osmotic pressure and cell count. Following pituitrin injection and access to water the cell count returned to normal and there was no indication of anaemia. Other experiments showed that the blood picture could be kept constant following pituitrin injection. This was accomplished by a forty-eight hour dehydration of rabbits previously on a wet diet. This procedure merely removed excess fluid from the gut and did not result in haemoconcentration. The animals were then placed on a diet of oats and injected with the usual dose of pituitrin. The cell count remained constant, showing that pituitrin anaemia can be prevented by measures designed to prevent water retention and consequent blood dilution.

The Mechanism of Convulsions in Insulin Hypoglycaemia.

It has been observed that no spastic convulsions occur in dogs which have been deprived of water and then rendered severely hypoglycaemic by the administration of insulin. David L. Drabkin and T. S. Ravidin (*American Journal of Physiology*, January, 1937) have confirmed this finding and extended it. A total of 40 experiments were performed on 31 dogs. Each experiment was a study of the response during a period of approximately four hours following the intravenous administration of 20 units per kilogram of body weight of insulin. The preparation of the animals varied considerably. Ten experiments were upon six relatively hydrated animals. Nine experiments were performed upon six relatively dehydrated animals. Thirteen experiments were carried out upon eleven hydrated animals, which had previously undergone complete bilateral removal of the stellate ganglia. Five experiments were carried out upon five hydrated animals which previously had undergone sectioning of both splanchnic nerves. Three experiments were performed upon three hydrated animals which had been subjected both to bilateral stellate ganglionectomy and bilateral sectioning of the splanchnic nerves. The blood sugar and haemoglobin values were recorded at hourly intervals, and the cerebro-spinal fluid pressure was recorded, continuous records being obtained in some cases by anesthetizing the animal with "Sodium amytal". In both hydrated and dehydrated animals after massive doses of insulin severe hypoglycaemia and anhydremia developed. A striking difference was observed, however, in the records of cerebro-spinal fluid pressure. In hydrated animals the cerebro-spinal pressure invariably rose after insulin. In dehydrated animals during hypoglycaemia the pressure rose slightly, remained unchanged or fell. Convulsions were invariably produced in insulinized hydrated animals and were absent in dehydrated animals given insulin. The exclusion of both

stellate ganglia modified the animal's response to insulin, rendering the animals relatively resistant to the drug. The further operation of bilateral splanchnic section once again rendered the animals normally reactive to insulin. The authors suggest the following sequence of events in hyperinsulinism: severe hypoglycaemia (plus hypophosphatemia and decrease in carbon dioxide capacity of the blood) → anhydremia → rise in cerebro-spinal fluid pressure to a critical level → (unknown mediating factors) → convulsions. Convulsions do not occur when this cycle is interrupted, although severe hypoglycaemia may be present. Dehydration presumably interferes with the cycle by preventing the rise of cerebro-spinal fluid pressure to a critical level.

BIOLOGICAL CHEMISTRY.

Diet in Maintenance of Dogs Deprived of their Adrenal Glands.

W. D. ALLERS AND E. C. KENDALL (*American Journal of Physiology*, January, 1937) succeeded in maintaining dogs that had been subjected to adrenalectomy by feeding a potassium-low diet to which were added sodium chloride and sodium citrate. It was found necessary to administer cortin only for a few days after operation. Subsequently the animals were maintained in normal health with sodium chloride and citrate. When the sodium salts were withheld, there was a rapid rise of the level of blood urea, which was promptly restored to normal by the administration of sodium salts without cortin. The treated dogs gained in weight and were active and strong. The concentrations of urea, glucose, sodium, potassium, chloride and bicarbonate in the blood were all within normal limits.

Copper in Nutritional Anaemia.

The results of studies on the copper and iron content of tissues and organs and on the copper content of blood in experimental nutritional anaemia (milk anaemia) have been reported by M. O. Schultze, C. A. Elvehjem and E. B. Hart (*Journal of Biological Chemistry*, November, 1936). In severely anemic rats the bodily stores of copper were found to be considerably depleted. Although maximum hemoglobin formation was observed after feeding severely anemic rats with iron and copper for seven days only, a small retention of copper occurred (5%). The feeding of iron and copper to pigs suffering from anaemia did not lead to accumulation of copper in the bone marrow of the distal ends of the ribs, despite the fact that hematopoiesis was proceeding rapidly. In pigs suffering from anaemia due to deficiency of iron and copper, the blood copper content fell to extremely low levels and then rose rapidly after feeding of copper. It is suggested that continued rapid

hematopoiesis cannot occur unless the blood copper content is maintained above a minimum level, which may be about 20 microgrammes per 100 cubic centimetres in the blood of the pig.

Magnesium Deficiency and Tetany.

S. W. HOOBLER, H. D. KRUSE AND E. V. MCCOLLUM (*American Journal of Hygiene*, January, 1937) have presented evidence to show that the tetany characteristic of magnesium deficiency in animals is related to the fall in serum magnesium. The infrequency with which diffusible calcium even approached a concentration associated with a critical tetanic range, and a lack of concurrence between the lowest values for each animal and the onset of convulsions, indicated that calcium ion concentration of the blood was not connected with magnesium tetany. As a result of the magnesium deficiency there was a fall in serum magnesium to extremely low levels, while the percentage of diffusible magnesium remained virtually unchanged. It was considered that the tetanic syndrome was associated with the extremely low concentration of magnesium ions in the blood.

Adrenal Cortex and Potassium Metabolism.

R. L. FWEMER AND R. TRUSEKOWSKI (*Endocrinology*, January, 1937) have described experiments on the relation of the adrenal gland to potassium metabolism. The various manifestations of the syndrome of adrenal insufficiency were reproduced by the injection of potassium salts in amounts which raised the plasma potassium to levels found in animals that had been deprived of their adrenal glands. Administration to animals that had been subjected to adrenalectomy, of potassium in food or by injection, in amounts which were easily tolerated by normal animals, resulted in the rapid production of anorexia, asthenia, progressive diminution of peripheral circulation, profound shock and terminal convulsions. Injection of adrenal cortex extract lowered the blood potassium of normal animals and protected them to some extent from otherwise fatal doses of potassium administered intraperitoneally.

Dark Adaptation and Vitamin A.

P. C. JEANS, E. BLANCHARD AND F. FENTIMIRE (*The Journal of the American Medical Association*, February 6, 1937) have developed a new photometer and a technique for its use in the determination of ability of a person to adapt himself to darkness. In the absence of gross uncorrected visual defects, the test was considered useful in detecting vitamin A deficiency. Improvement after vitamin A therapy was noted in patients having abnormal dark adaptation. The authors are of the opinion that vitamin A deficiency occurs more frequently than has been generally assumed.

British Medical Association News.

SCIENTIFIC.

A MEETING of the Victorian Branch of the British Medical Association was held at Saint Vincent's Hospital, Melbourne, on November 18, 1936. The meeting took the form of a series of clinical demonstrations by members of the honorary staff. Parts of this report appeared in the issues of April 10, and April 24, 1937.

Allergy.

DR. GERALD DOYLE and Dr. P. COMMONS presented several cases of allergy in order to obtain from the visiting members criticism of the methods used. A basal allergic diet had been designed, consisting of foods which, in Melbourne, had been found to be least allergic. If symptoms occurred under the diet, articles were added and substituted in a definite order. If the patients were symptom-free, then there was a list of foods that could be added to the diet. The recurrence of symptoms thus enabled the observer to find the offending addition.

One patient shown, a salesgirl, aged twenty-one years, had had indigestion on and off since January, 1936. The indigestion had been associated with discomfort, pain and belching, which took place at intervals and which was so severe that the patient had been compelled to avoid food altogether. She had noticed the pain in the back and in the mid-epigastrium, and she said that the abdomen had had a tight feeling, as though it were going to burst. The patient had a past history of measles and mumps, and she said that milk always made the indigestion and pain much worse; there was no allergic family history.

General examination revealed a healthy adult, weighing eight stone seven pounds; physical examination of the heart revealed a slight systolic murmur at the apex beat, which was not conducted. The lungs were clear, but there was a tender spot on the mid-epigastrium, half way between the umbilicus and the ensiform cartilage. A skiagram of the oesophageal passage was normal and the stomach had had no residue after six hours; no ulcer niche or filling defect was noted. The duodenal cap was clearly outlined and normal in contour and filling; the stomach was hyperperistaltic. As milk caused pain, the patient had been placed on the basal allergic diet, but the pains continued, and after alterations every week the patient became stabilised. The patient had not reacted by the intradermal test to any of the foods, with the exception of rice, egg-white and celery. At the time of the meeting the patient was on the basal allergic diet, with the additions of tea, egg, wheat, fish and beef; milk was given only in small quantities after boiling; she was free from pain and in good health as long as she avoided raw milk.

Another patient, a woman, was shown as suffering from angioneurotic oedema of food origin. The patient had been examined on June 11, 1936. She had a history of painful, swollen joints and swelling of the hands, the eyes were red and sore, and the ankles and knees became swollen and stiff if the patient sat down for any considerable length of time. She had had a previous attack three years earlier and had been treated unsuccessfully with thyroid medication. With the exception of some head noises and an attack of asthma which had occurred twenty-two years before the meeting, the past history was irrelevant. Food tests by the raw food scratch method had given reactions to celery, oatmeal, honey, pepper, peas, lamb, and intradermally the patient had reacted to honey and banana. She had been placed on the basal diet and it had been found that the maize had to be removed, as it upset her; wheat was substituted in its place. The patient was also upset by milk and tomato, but egg was tolerated. She had carried on the diet in comfort until barracouta was added; hives had resulted from this addition and had disappeared when it was removed. At the time of the meeting the patient was well and living on a very liberal diet.

Another woman had had numerous attacks of asthma for twenty years. The attack previous to her attendance at the hospital had lasted four months. The patient had been first seen by Dr. Doyle in February, 1936; there had been no allergic family history, and a general examination revealed slight emphysema of the chest and very enlarged tonsils. Skin tests had shown sensitiveness to house dust, hen feathers, orris root, rabbit fur, cocksfoot and Murray pine. The patient had carried out the usual rule of avoiding the inhalants to which she was sensitive, and a series of desensitizing injections afforded but little relief; she had shown slight improvement, but a relapse had followed. The dyspnoea had been so severe that it was decided to test the condition of the bronchial tubes by the injection of lipiodol, but the injection had had to be put off until September owing to the patient's poor condition. X ray examination revealed a generalized increased prominence of the lung markings, with definite left heart enlargement. The main bronchus, with its main subdivisions, had been well outlined, but lipiodol could not be induced to flow into the alveoli. The findings had been consistent with the spasmodic condition of the bronchial ducts. The patient had been very distressed after the examination, but the asthma disappeared and there was no recurrence for two months. The patient had been shown to demonstrate the difficulties of treating asthmatic patients. As far as the patient could say, no other alterations had been made in her mode of living, diet or any factor that might affect the asthma. The treatment had been tried on other patients but had been a failure.

Another patient, a woman, aged fifty-six years, had general allergic manifestations. The main exhibition of the allergic tendency was that "Elastoplast" had been applied to the leg in an attempt to cure an ulcer and it had resulted in an acute allergic response, in which the leg had swollen badly and the skin margins of the plaster and leg had been covered with large vesicles, and underneath the plaster were very large blebs full of fluid. At the time of examination at the clinic on July 27, 1936, four weeks after the plaster was applied, the skin was covered with fine scales. She had been examined in the skin department for a rash which was described as an itchy, erythematous condition similar to an acute toxic dermatitis. She had been under treatment for pernicious anaemia, and in July, 1934, was placed on "Campolon", receiving an injection of four cubic centimetres every week; her condition had been satisfactory, and in August the amount injected was increased to four cubic centimetres twice a week; early in November, 1934, she was placed under treatment with liquid "Hepasol" with iron, and her condition remained satisfactory until January 22, 1936, when she was again given four cubic centimetres of "Campolon" every week. On March 25 she had an attack of severe upper abdominal pain accompanied by vomiting, and on April 8, 1936, she said that grapes had given her severe indigestion. She said that the injection of "Campolon" had been followed by a severe reaction in July, and the skin of the face, hands, shoulders and arms became swollen and irritable. The intradermal skin tests at the time yielded definitely positive reactions (++) to banana, beef and "Campolon". The patient had then been put on the basal allergic diet, but the rash on the face did not disappear. During this time she had been taking the "Hepatos" by mouth, and since that time positive reactions had been obtained to "Hepasol", "Karna Vita", "Livex" and "Hepatex". She had not been so well while she was taking liver by the mouth, and great difficulty had been experienced in finding a liver extract to which she was not sensitive. The patient had since been found non-sensitive to "Anhemmin" (British Drug Houses), which was being used with excellent results.

Dr. Doyle also showed another patient, a man, aged fifty-five years, who was a carrier by occupation. He said that this patient had been demonstrated to members of the British Medical Association at Saint Vincent's Hospital clinical evening on November 20, 1935, and that the full history of the case was outlined in THE MEDICAL JOURNAL OF AUSTRALIA of March 28, 1936, at page 444. Since the publication of the report the patient had been

transferred to the surgical service under the care of Dr. F. F. D'Arcy, and bilateral stellate ganglionectomy by the posterior approach of Adson had been performed in February, 1936. Following the operation the pain in the arm and neck was relieved, but the patient complained of a tightness in the neck. The partial relief was, however, offset by severe muscular pain in the shoulders, which was apparently post-operative in origin. Massage and physical therapy had been employed to alleviate these symptoms, with moderate success. The original pain in the precordium had resisted all treatment and was still present; its severity was the same as before the operation, and the patient had to take trinitrin tablets frequently. The patient was also unable to undress, and retire without experiencing a severe attack of pain. Dr. Doyle said that an electrocardiographic tracing taken since the ganglionectomy had shown no change, the curves being indistinguishable from those taken before the surgical intervention. He said that the case might be regarded as a failure, and he was anxious to obtain from the members criticism of the methods used and advice as to the future conduct of the case.

Jacobeus's Operation in a Case of Pulmonary Tuberculosis.

Dr. W. NEWING showed a young woman, twenty-six years of age, who had first shown evidence of tuberculosis three years before. Cavitation had occurred rapidly, and, as the disease was unilateral, artificial pneumothorax was performed. This was successful in arresting the disease and the patient had improved rapidly over a period of eighteen months. Owing to an adhesion, however, the cavity had resisted closure and the patient, though in good physical condition, continued to expel two drachms of sputum every day. The adhesion at this period became stretched and resembled a cord two or three millimetres thick. Jacobeus's operation was performed, the adhesion being divided by a diathermy cautery under vision with the thoracoscope. The result was successful, all sputum disappearing within three months. At the time of the meeting Dr. Newing said that there was no sign of the cavity; but the lung was still being kept under compression.

Pulmonary Tuberculosis.

Dr. Newing also showed a boy, twelve years and nine months of age, who, two years before, had had an hæmoptysis which had not been treated seriously; the boy had continued at school until three months previous to the meeting, when he developed a cough and sputum. Dr. Newing said that the present condition was the adult type of tuberculosis in the left upper lobe, with cavitation and considerable fibrous reaction, but the right lung was clear. Dr. Newing had shown the patient as suffering from a somewhat unusual type of tuberculosis, and he thought that artificial pneumothorax would be the best line of treatment.

Aortic Stenosis with Intractable Angina.

Another patient shown by Dr. Newing was a man, forty-one years of age, with classical signs of aortic stenosis. Owing to the absence of a history of any previous illness and an absence of response to the Wassermann test, the condition was regarded as arteriosclerotic in nature. The patient had been in the wards at Saint Vincent's Hospital for two months, suffering from intractable *angina pectoris*. The pain had come in attacks which had lasted for several hours; they had sometimes followed moving about in bed, but most frequently commenced during sleep. Four months previous to the meeting, cervical sympathectomy had been performed, the last two cervical and first dorsal ganglia being removed. Dr. Newing said that the operation had not caused any appreciable amelioration of the pain.

Painful Breasts and "Chronic Mastitis".

Dr. F. F. D'Arcy showed patients suffering from painful breasts and nodular mastitis due to endocrine imbalance. Quoting from the investigations of various clinics abroad, he discussed the relationship between "chronic mastitis" and ovarian hormones. He said that the follicular hormone ("Folliculin", "Theelin", "Estrin", "Estroform", "Pro-

gynon" et cetera) was experimentally antagonistic to the corpus luteum hormone ("Progestin", "Proluton"). A definite balance between these hormones was essential for normal function. Excessive estrin caused excessive hyperplasia of galactiferous tubules, while excessive progestin caused excessive hyperplasia of glandular alveoli and epithelial desquamation. Estrin concentration in the blood began in the mid-period of the menstrual cycle, progestin concentration during the last week before the menstrual cycle. The most frequent cause of premenstrual mammary pain and nodular mastitis was a deficiency of estrin or an increase in concentration of progestin. A monthly repetition of painful nodular mastitis led to chronic "cystic mastitis". The treatment consisted in restoring the endocrine balance. The injection of estrin ("Estroform"), one cubic centimetre (1,000 units) fourteen and seven days before each period, cured the mammary pain and caused a gradual disappearance of the nodular thickening. Ovarian residue tablets or emplets (five grains), given by mouth twice daily, were recommended in addition to stimulate ovarian function.

Dr. D'Arcy's first patient was an unmarried woman, aged twenty-two years, who had complained of a painful lump in her left breast for two years. The pain lasted for the week before and during the period. Periods were scanty. Local supporting treatment and drugs were without effect. The lump was excised in January, 1936. The pathological report was "cystic mastitis, definitely premalignant". The patient was well for three months and then developed pain and thickening in the axillary tail in the same breast. Pain and tenderness were exaggerated before and during the menstrual period, and a definite lump developed. About three months before the meeting a course of injections of "Estroform" was begun; one cubic centimetre of "Estroform" was given hypodermically fourteen and seven days before each period. Since then the pain had gradually disappeared, the tenderness had gone, and only a very slight thickening could be felt where the lump was palpable. The menstrual loss had increased and was normal.

Dr. D'Arcy also showed an unmarried woman, aged forty-seven years, who had noticed a painful lump, 2.5 by 2.0 centimetres, in her left breast three months previously. Eight years previously she had a similar lump excised, and the pathological report was "cystic mastitis". The patient had been given "Estroform" injections fourteen and seven days before the menstrual periods for two and a half months, and ovarian residue tablets by mouth twice a day. The lump had almost disappeared, tenderness and pain had completely subsided, and the patient felt better generally.

Dr. D'Arcy's third patient was a married woman, aged thirty years, who complained of painful breasts before and during her menstrual periods, with development of painful breast thickenings during the last three or four months. Her menstrual loss was scanty. She had one child, aged seven years. On examination there were tender nodular thickenings in the mid-lower segment of the left breast. She had begun a course of "Estroform" injections and was already relieved.

Paget's Disease: Osteitis Deformans.

Dr. J. FORBES MACKENZIE showed a patient suffering from *osteitis deformans*, who had been treated by musculo-fascial implants into the lower end of the left femur and the upper ends of both tibiae. This operation had been done twice, with a twelve months' interval between the two operations. At the second operation the tibia, which had been operated on twelve months earlier, was opened, and evidence of increased condensation of bone was noted. This agreed with the radiological evidence. Pain in this case was relieved and the patient's condition was very satisfactory.

This operation had been performed in eight cases of Paget's disease and, with one exception, had given good results. The case which did not respond was one in which evidence of great bony sclerosis of the cortex was found at operation. This case, however, was interesting in that a gutter was cut in the parietal bone down to the *dura mater*. The patient stated that his headaches were

relieved. The bone of the skull was very soft and bled profusely, necessitating packing. No muscle implant was used.

Total Thyroidectomy for Carcinoma of the Liver.

Dr. Mackenzie also showed a married woman, aged thirty years, who was found on abdominal exploration to have a primary carcinoma of the left lobe of the liver. A piece was removed, and Dr. Andrew Brennan's report was that the growth had all the characteristics of a primary carcinoma. The diagnosis before operation was calcified hydatid of either the liver or spleen; but the Casoni test gave no reaction.

Dr. Mackenzie said that the idea of removing the thyroid was to produce, if possible, a myxœdemic state, as the combination of myxœdema and malignant disease was practically unknown. Dr. Mackenzie had only come across one case in twenty years, and that case was reported to him by Dr. Leo Doyle, the patient, a true myxœdemic, having a carcinoma of the colon. At operation the thyroid was removed, only a very thin layer being left to avoid the parathyroid; therefore it could be said that total thyroidectomy had not been performed. This operation was performed in March, 1936, and a series of photographs was taken at monthly intervals. There was only slight evidence of facial changes of a myxœdemic character. At the date of showing the patient was very well, had gained weight, and did all her own housework, which included care of a three-year-old child. The tumour was smaller, but not much, and there was no evidence of metastasis.

In another case a similar operation was performed very shortly afterwards. The patient, who was suffering from adenocarcinoma of the liver, secondary to a malignant stomach, had not done well at all, and when last heard of was going down hill rapidly. This patient was a man, aged thirty years.

Bone-Drilling for Sacro-Iliac Pain.

Dr. Mackenzie showed a male patient, an Italian, aged thirty-five years, who had been suffering for eight months from sacro-iliac pain, which extended down his left sciatic nerve and into the left hip joint. This patient had had conventional treatment, including diathermy, over a long period, was very crippled and walked with a marked stoop. Pressure over the sacro-iliac articulations, particularly on the left side, had caused intense pain, which made him cry out. A series of drill holes were made into the ilium on each side, lateral to the articulation. Relief from the back pain had followed rapidly; but he had still complained of his hip. The trochanter and the neck of his femur were then drilled with complete relief of all symptoms and the patient stated that he could stand straight and walk straight without pain; he could stoop and straighten himself with ease.

Bilateral Decapsulation of the Kidney for Acute Nephritis.

Dr. Mackenzie showed a young man who, at the age of seventeen years, had been subjected to decapsulation of the kidney for typical acute nephritis. The patient had been water-logged, secreting only four ounces of dirty fluid per day; he was rapidly becoming uræmic. The kidney was decapsulated in 1931, and the urine secretion rapidly increased, reaching the amount of 170 ounces per day. He made a good recovery, but a year afterwards presented himself with œdema and evidences of recurrence. The other kidney was decapsulated and he had had perfect health since, with the exception of an influenzal bronchopneumonia, from which he made an easy recovery. He ran as a professional and last football season played with a League second football team.

A MEETING of the South Australian Branch of the British Medical Association was held at the Adelaide Hospital on November 26, 1936, Dr. A. F. STOKES, the President, in the chair. The meeting took the form of a series of clinical demonstrations by members of the honorary staffs of the Adelaide Hospital and of the Adelaide Children's Hospital.

Pernicious Anæmia.

Dr. A. R. Southwood demonstrated a case of pernicious anæmia and reviewed the modern methods of treatment. The patient was a widow, fifty-five years of age; she had noticed increasing weakness, digestive discomfort and loss of weight for twelve months. She had been much troubled with the sensation of "pins and needles" over the head and in the extremities. Blood examination showed a typical picture of pernicious anæmia. The red cell count was 1,200,000 per cubic millimetre, that of the white cells 2,100, and the hæmoglobin value was 30%.

The patient was given an injection of two cubic centimetres of "Anahæmin", corresponding to 200 milligrammes of the active hæmatopoietic liver principle described in 1935 by Dakin and West. The reticulocyte crisis reached 16% on the fourth day after the injection, and by the fourteenth day the reticulocyte count was down to 2%. A further injection of four cubic centimetres of "Anahæmin" was then given, the larger dose being chosen in order to test the adequacy of the initial injection. There was no secondary reticulocyte rise, thus showing that the first injection had elicited the maximal response. Five weeks after the first injection of "Anahæmin" the red cell count was 4,500,000 per cubic millimetre, or nearly four times the initial figure; the hæmoglobin value had risen to 77%.

Dr. Southwood briefly reviewed the stages in the liver treatment of pernicious anæmia since 1925, when Whipple had reported the value of whole liver feeding in post-hæmorrhagic anæmia experimentally produced in dogs. Minot and Murphy had tried the effect of liver feeding on pernicious anæmia in the human subject, and the results were miraculous. The elaboration of extracts suitable for parenteral administration was due to the work of Cohn, Minot, Castle, Gansslen and others. A great advance, the isolation of the active principle of liver, was made by Dakin and West in 1935. The hæmatopoietic activity in this substance ("Anahæmin") was considerably greater than that of any previously described liver preparation. Clinical trials under the ægis of the Medical Research Council in England showed that a prompt reticulocyte response occurred in the pernicious anæmia patient when an injection of two cubic centimetres of a solution containing 100 milligrammes of "Anahæmin" per cubic centimetre was given. The effect was maintained for about a month. It was probable that one injection each month of two cubic centimetres of the "Anahæmin" solution provided sufficient hæmatopoietic liver principle for the average patient.

Dr. Southwood emphasized the need for giving iron preparations in addition to the injections of liver principle in pernicious anæmia. In the days when whole liver feeding was the standard method of treatment, additional iron had not been necessary. The liver ingested contained sufficient iron for the patient's needs. The injectable preparations of liver did not contain the necessary iron. Unless additional iron was provided, the patient's progress was delayed, for the ordinary dietary contained too little iron for rapid blood regeneration. With "Anahæmin" and similar preparations now available the treatment of pernicious anæmia had become almost as precise as a mathematical exercise.

Surgery of the Colon.

Dr. LEONARD LINDON showed two patients to illustrate "safety-first" principles in the surgery of the colon.

Sigmoid Diverticulitis, Complicated Vesico-Colic Fistula and Abscess.

The first patient was a male, aged forty-five years, who had been admitted to the Adelaide Hospital with the unusual history that for two months he had been passing flatus *per urethram*. Two days before he was seen in consultation he had passed feces and blood *per urethram* as well, and had had severe lower abdominal pain, vomiting and fever.

Examination showed a very stout, sixteen-stone man, with a large abscess occupying the left lower quadrant of the abdomen. On rectal examination the prostate was

found to be tender, but no mass could be felt. It was fairly obvious that he was suffering from a vesico-colic fistula, with a recently formed suppurative pericolicitis, and that the primary cause was either diverticulitis or carcinoma of the sigmoid colon. His immediate need was drainage of the large abscess, and this was done on September 15, 1934, through a low incision far out in the left iliac fossa. At the same time a transverse colostomy was performed in the left epigastric region. Two days later a small barium enema showed advanced changes of diverticulitis, apparently limited to the sigmoid colon, and a vesico-colic fistula.

For the next month the bowel distal to the colostomy was washed out daily with potassium permanganate solution.

On October 22, 1934, five weeks after the colostomy had been performed, a second barium enema was given; none of the barium could be made to pass into the bladder. The wound of drainage of the abscess having closed, the patient was sent home with a view to further operative treatment after the local peritonitis had been given ample time to subside.

On December 19, 1934, under spinal and ethylene-oxygen anaesthesia, the affected colon was explored through a paramedian incision. The vesico-colic fistula had completely healed and the colon was held to the bladder merely by peritoneal adhesions and was easily freed. The sigmoid colon was mobilized and treated by von Micklewitz's method, the patient being left with a second colostomy through the subumbilical incision.

Attempts to close this latter colostomy by crushing the spur were not successful, and on February 20, 1935, under spinal anaesthesia, the lower colostomy was dissected out and closed, the transverse colostomy still being left for safety. Finally, on February 27, 1935, the transverse colostomy was closed, and the patient was discharged from hospital on March 23, 1935. Dr. Lindon said that the patient had remained well and had been at work for the last eighteen months.

Carcinoma of the Pelvic Colon Infiltrating the Bladder.

The second patient was a male, aged fifty-five years, who had been admitted to hospital with symptoms of progressive chronic obstruction of five months' duration. The abdomen was distended, but a mass could be felt in the left hypogastric region. On rectal examination the lower border of the mass could just be felt. There was no dysuria. The pre-operative diagnosis was carcinoma of the pelvic colon. On March 21, 1936, through an oblique incision in the left iliac fossa, the abdomen was explored. The mass was found to be a large growth of the pelvic colon, firmly fixed to the superior wall of the bladder. No metastases were felt. A left iliac colostomy was performed through the same incision. Dr. Lindon said that on reflection, in view of the possibility of subsequent resection, it would have been much wiser to have performed transverse colostomy.

The next two weeks had been occupied in lavage of the bowel distal to the colostomy with mercurochrome solution. On April 4, 1936, under spinal anaesthesia, the affected colon, together with its meso-colic tissue and a large area of the postero-superior wall of the bladder, was excised. The segments of colon were treated by von Micklewitz's method, a second colostomy being left in the paramedian incision. The bladder wall was mobilized and sutured in two layers, and a rubber catheter was retained in the urethra for nine days. There was no leakage of urine, and when the catheter was removed normal micturition was resumed without any trouble. On May 16, 1936, under spinal anaesthesia again, both colostomies were closed. On June 2, 1936, the patient was discharged from hospital with bowels and bladder acting normally. He was later given a course of X ray therapy. At the time of the meeting he was very well and at work.

In discussing these cases, Dr. Lindon said that they served to illustrate the value of a principle which Devine had recently termed "de-functioning". In the case of the colon this was achieved by preliminary colostomy; in the case of the bladder, by the indwelling catheter, which prevented the development of intravesical pressure and

so facilitated healing without leakage. The cases also emphasized the value of pre-operative lavage of the "de-functioned" colon.

Gynaecomastia.

Dr. Lindon also showed a male, aged fifty-seven years, who was admitted to the Adelaide Hospital with an adeno-carcinoma of the rectum which was deemed inoperable. On July 23, 1934, a left iliac colostomy was performed. A course of X ray therapy was then begun in the hope of rendering the growth operable at a later date. The growth diminished in size and became more mobile, and on October 17, 1934, under spinal anaesthesia and gas, a perineal excision of the rectum was performed.

Early in 1935 the patient complained that both breasts were giving him great pain and that they were enlarged. They were tender and irritated by the pressure of his braces. He was found to have quite obvious enlargement of both mammary glands, the right being more affected than the left. The right gland was over two inches in diameter and projected about one inch from the pectoral region. The nipples had become more prominent. It was easy to distinguish between the breast tissue and the adjacent fat. At the same time it was found that both testes had undergone atrophy. At the time of the meeting the breasts had retrogressed considerably, but were still present as abnormally well-developed mammary glands. The testes were completely atrophic.

Dr. Lindon said that this case was of interest in the light of Dean Lewis's work on the relation between the internal secretions of the gonads and the development of benign tumours of the breast and the abnormal growth of breast tissue.

Post-Traumatic Epilepsy.

Dr. Lindon also showed a male, aged thirty-one years, who illustrated the treatment of post-traumatic epilepsy by the method of Penfield and Förster. Ten years ago this man met with a motor-cycle accident and sustained a compound fracture of the vault of the skull, with a deep penetrating wound of the right frontal lobe. He recovered from the accident, but was left with a large bone defect and a depressed scar between scalp and brain. Four years later epileptic fits began. Two years later, in other words four years prior to the meeting, an encephalogram showed commencing wandering of the ventricles towards the bone defect. An operation was performed, the brain and dura were freed from the scalp, and the bone defect was made good by rib grafts. However, the fits soon recurred. In the last four years the fits had become more frequent, now occurring about twice a week and becoming more severe. The fits were ushered in by forcible deviation of the patient's head and eyes to the opposite side, a movement which the patient could not prevent. After recovery of consciousness severe headache persisted for several hours.

An encephalogram prepared on September 11, 1936, showed much greater wandering of the ventricles toward the old scar. According to Penfield, the presence of ventricles which were being dragged towards an old brain scar was one of the strongest indications for surgical intervention in traumatic epilepsy. On September 23, 1936, a big osteoplastic flap was raised, including in its centre the old bone defect which had been closed with grafts. A block of brain tissue was excised; this block included the scarred dura and the very tough scar in the brain, which extended nearly to the ventricle. Actually excision was freely carried into the anterior horn of the right ventricle, so that a cavity remained with walls consisting of clean-cut brain tissue. The dural defect was filled by a fascial graft and the wound was closed.

Since operation there had been no fits; but Dr. Lindon explained that no question of estimating cure could arise for years; it could only be claimed that an alleviation of the condition had occurred. But the patient was shown as illustrating some of Penfield's postulates for surgical intervention: (i) a penetrating brain wound causing epilepsy; (ii) epilepsy of constant pattern; (iii) the presence of a contracting meningo-cerebral cicatrix, as

shown by progressive wandering of ventricles seen in an encephalogram; (iv) the site of the scar corresponding anatomically with the physiological pattern of the ft.

Carcinoma of the Breast.

Dr. P. S. Messent showed a woman, aged forty-eight years, who had noted an irritation of the skin over the upper and outer part of the right breast four months previously. While rubbing the skin she noted a lump in the breast; since then the lump had enlarged rapidly and had been red and inflamed for four weeks. There had been no discharge from the nipple. She had abscesses of the right breast during lactation eighteen years and five years previously.

Examination revealed a middle-aged woman, well nourished and with good colour. Occupying the outer half of the right breast was a large spherical swelling, ten centimetres in diameter. The skin covering the swelling was shiny, dark purple in colour. The nipple was slightly retracted. The temperature of this skin was elevated. The tumour was firm and its surface was slightly irregular; there was some degree of fixation to the pectoral fascia. No glandular enlargement could be detected. X ray examination did not reveal any metastatic deposits in the thorax or in bones. The condition was considered to be acute carcinoma of the breast; in spite of the absence of obvious metastasis, the prognosis was grave.

It was suggested that the best treatment would be to administer a full course of deep X ray treatment followed by radical amputation at a later date.

Pyonephrosis.

Dr. Messent also showed a man, aged forty-six years, who, on August 26, 1936, complained that for four years he had noted attacks of pain in the left loin, sometimes associated with the appearance of a palpable lump. There had been no urinary symptoms. Examination revealed a large swelling in the left loin exhibiting the characteristic features of a renal tumour. The urine was normal. Pyelography (intravenous and retrograde) showed that the right kidney was normal in position, shape and secretory function. The left kidney was grossly enlarged; no dye was secreted (the pelvis was not injected by a catheter).

On September 14, 1936, following an examination by students, there was an acute exacerbation of symptoms—severe pain and tenderness over the swelling (which increased in size), pyrexia, pyuria and hæmaturia. The patient appeared very ill for several days, and irregular pyrexia, associated with pus and blood in the urine, continued for about fourteen days.

At the time of the meeting the patient looked well; his temperature was normal; the left kidney was palpable, and the right kidney was readily palpable and slightly tender. X ray examination of the kidneys revealed no alteration in the condition; the urine from the right kidney was still normal. Dr. Messent said that this was considered to be a case of pyonephrosis of the left kidney of unknown origin. In some way the manipulations of the students had apparently precipitated an inflammatory reaction, which was followed by evacuation of the distended kidney. The clinical finding suggested the right kidney as the diseased organ. It was thought that the left kidney should be removed.

Tuberculous Ulcer of the Tongue.

Dr. Messent said that he was indebted to Dr. G. H. Burnell for permission to show his third patient. This was a man, aged forty-six years, who gave a history that he had had an ulcer on the tongue for four weeks. He had pneumonia in 1918 and had had a winter cough for ten years. He had had a chancre twenty-seven years and a gumma of the left shoulder eleven years previously. At that time he had a positive Wassermann reaction.

Examination revealed a pale, thin man. His tongue protruded freely, and on the dorsum, in the mid-line, at the junction of the posterior and middle thirds, was a deep ulcer with irregular, slightly hypertrophic margins; the base was clean; there was no induration.

Anterior to this were two small submucous nodules.

On the anterior pillar of the fauces (right side) was a small ulcer with slightly undermined edges. There was slight enlargement of the upper deep cervical glands on both sides. The Wassermann test gave no reaction. The sputum contained tubercle bacilli. Microscopic section of the ulcer and of one of the nodules showed a "tuberculous inflammatory reaction". X ray examination of the chest revealed extensive opacities throughout both the upper lung fields, indicative of advanced chronic phthisis, with a good deal of multiple cavitation and fibrosis on the right side.

Although the microscopic section showed tuberculous inflammatory reaction, the ulcer was larger than was usual in this condition, its margin was more hypertrophic, and there had been very little pain. On the other hand, the ulcer had not the typical punched out appearance nor the sloughy base typical of a gumma. It was suggested that it might be a tuberculous ulcer, altered by its occurrence in a syphilitic subject.

Chronic Colitis.

Dr. F. N. Le Messurier showed a girl of nine and a half years, who for a period of four months had suffered from indefinite abdominal pains and intermittent bleeding from the bowel. The liver edge was palpable 2.5 centimetres (one inch) below the costal margin, and there was a considerable degree of secondary anaemia, the hemoglobin value (Sahli) being 55%. Sigmoidoscopy had revealed no abnormality. A barium enema disclosed a lack of haustration in the descending colon. At an exploratory laparotomy there was discovered hyperæmia and slight thickening of the caecum and ascending colon. No pathogenic organisms were grown from the faeces, and the Wassermann test yielded no reaction. Dr. Le Messurier was of the opinion that the condition was one of chronic colitis.

Ureteral Obstruction.

Dr. Le Messurier's second patient was a girl of eight years, who complained of intermittent pain on the left side of the abdomen. The pain was brought on by exertion and was relieved by lying down. Nothing could be found on physical examination. A retrograde pyelogram revealed a moderate degree of distension of the left renal pelvis. This was confirmed by the results of "Uroselectan" injection; the left renal pelvis was dilated and the dye was held up on the left side forty-five minutes after injection. It was suggested that an aberrant renal artery might be responsible for causing an obstruction at the junction of the left pelvis and the ureter.

Undescended Testis.

Dr. L. A. Wilson showed three boys on whom the Torek operation for undescended testicle had been performed. The boys were all between eight and ten years old, and had an associated inguinal hernia when operated on. In no case had "Pregnyl" been tried.

Popliteal Aneurysm.

Dr. Wilson also showed a man, aged seventy years, who had been operated on two years previously for a popliteal aneurysm. The aneurysm had been increasing in size and causing pain in the calf. Under gas and oxygen anaesthesia the artery and vein had been ligated at the lower end of Hunter's canal. All pulsation and pain had stopped, but the size of the aneurysm had not diminished. The patient was well and was able to move about freely.

Fusion of the Kidneys.

Dr. Wilson showed a child, aged eleven years, who displayed fusion of the kidneys. The boy had complained of attacks of right-sided abdominal pain for two years, and a mass was palpable in the right loin. An injection of "Per-abrodil" suggested two kidneys on the right side and none on the left. On cystoscopic examination the ureteric orifices were in their normal position, and an opaque catheter inserted into the left orifice passed upwards across the mid-line into an abnormally placed kidney. This condition could not be diagnosed by cystoscopy alone.

NOMINATIONS AND ELECTIONS.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

McColm, Nevyl Fleming, M.B., B.S., 1935 (Univ. Sydney), Box 33, Dorrigo.

Obituary.

ARTHUR JEFFREYS WOOD.

WE are indebted to Dr. H. Boyd Graham for the following account of the career of the late Dr. Arthur Jeffreys Wood.

With the passing of Arthur Jeffreys Wood the people of Melbourne mourn the loss of one of her noblest sons and notable citizens, and the members of the medical profession throughout Australia are sensible of the fact that a distinguished paediatricist has left them, though his influence will live on.

He was born on April 9, 1861, at Christchurch Parsonage, Wood Street, Lower Hawthorn, Melbourne, and was educated at Hawthorn Grammar School under Professor M. H. Irving. From that school he qualified for matriculation at the University of Melbourne in 1877. In 1879 he went to England for a trip, and for six months in 1880 attended King's College, London, for occasional subjects. He started the medical course at the University of Melbourne in 1881 and graduated in 1885. He was resident medical officer at the Melbourne General Hospital in 1886, and at the Children's Hospital from 1887 to 1890, during which period he obtained, by examination, the degree of Doctor of Medicine of the University of Melbourne. When he succeeded the late Dr. Alexander S. Althison as the sole resident medical officer at the Children's Hospital there were only forty-five beds, and the total indoor admissions during his first year of office amounted to five hundred and forty-four. He lived to see the hospital he loved and served for over thirty-three years grow to three hundred and eighty-five beds and over five thousand five hundred indoor admissions per annum, and had a very great influence on the various stages of development of the hospital, which now requires the services of eleven resident medical officers and a large honorary medical staff. After his first year at the hospital the late Dr. F. Hobill Cole joined him as a second resident medical officer, and in the fourth year his colleague was the late Richard Rawdon Stawell. They were succeeded in 1890 by Dr. E. Alan Mackay and the late Dr. R. W. Lewers. Dr. Jeffreys Wood went to America and to England, and for part of the time he was accompanied by Dr. R. R. Stawell. Together they did a post-graduate course at the National Hospital for Nervous Diseases, Queen Square, London, and attended the Hospital for Sick Children at Great Ormond Street. On returning to Melbourne in 1891, Dr. Jeffreys Wood commenced practice in Collins Street and was appointed an honorary attending medical officer at the Children's Hospital, becoming a colleague in a wonderful team consisting of such men as the late W. Snowball, P. B. Bennie, R. Hamilton Russell and Charles S. Ryan. This appointment involved for Dr. Jeffreys Wood medical and surgical work for in-patients and out-patients at the hospital, and he continued to be reappointed and to do this work until he resigned at the retiring age of sixty years in 1921.

Dr. Jeffreys Wood performed the first intubation for laryngeal diphtheria in Melbourne in 1891 after returning from his travels abroad, and was successful in saving the lives of five out of the first nine patients. When it is remembered that in those days this condition was invariably fatal and that the use of antitoxic serum was unknown, the importance of this advance in treatment will be realized. He was very active in the improvement of the milk supply for infants in Melbourne, and served on the commission appointed to report on the best substitute for breast milk in infant feeding, and on the

special committee of the Victorian Branch of the British Medical Association on the milk supply for infants, the work of which brought about the establishment of the Talbot Milk Institute. Dr. Wood reported and treated the first cases of scurvy in infants recognized in Melbourne, and also pointed out that rickets was an affection that was present in mild degree in Melbourne. He was also one of the first to practise the Lorenz method of replacement of congenital dislocation of the hip. In the latter part of his career he became a recognized authority on pink disease in babies and young children; he wrote a comprehensive paper on this subject in conjunction with the late Dr. Hobill Cole in 1918, and subsequently made many valuable contributions to our knowledge of this condition. In 1921, at the time of his retirement from the Children's Hospital, he was chairman of the honorary medical staff of that hospital, Chairman of the Talbot Milk Institute, Chairman of the Victorian Baby Health Centres Association, in the formation of which he had taken a very active part, and Chairman of the Board of Management of the Infectious Diseases Hospital—an indication of the extent of his public-mindedness and value to the community. In 1922 he presented the Committee of Management of the Children's Hospital with a treasury bond, the interest from which is spent annually for the purchase of a gold medal for the best nursing trainee of the year. It is awarded to the nurse who obtains high marks in the hospital examination and is considered the best practical nurse and the one who is kindest to the patients and most sympathetic with the parents. When the babies' wards were opened in 1926, one section was named after Dr. A. J. Wood and another after Dr. F. H. Cole.

Naturally, such a man as Jeffreys Wood gave a great service to organize professional bodies. In his student days he was secretary to the Medical Students' Society and later secretary to the Medical Society of Victoria and a member of the committee of this society until, in 1905, he became president. In this period he helped to edit the journal of the society. In the presidential address he reviewed the history of the medical profession in Victoria and urged the amalgamation of the society with the rival Victorian Branch of the British Medical Association, and pointed out a workable method to bring about this union. In the following year the amalgamation took place. Jeffreys Wood was elected on the Council of the newly formed British Medical Association, Victorian Branch, and was reelected annually to the end of 1921, when he retired with an unbroken record of twenty-five years as committeeman and councillor. The Melbourne Paediatric Society was dominated by his influence from its formation, and even to the end he often attended the meetings and was always ready to contribute to the discussions. Recently he had the honour to be elected a member of the British Society of Paediatricians.

The protean activities of Dr. Jeffreys Wood in professional matters do not require further detailed elaboration, but the memory of the man would be incomplete without reference to the breadth and fullness of his knowledge of the clinical details of children's illnesses, derived from keenness of observation and profound study of books and journals, and of the value of the practical application of the principles of child psychology. The quiet and modest way in which he always endeavoured to share this store of wisdom with all who sought his help was an outstanding feature, and we all regret that he has not left us a book of his wisdom, though there can be few medical practitioners of the many who came in contact with him who will not treasure some illuminating sidelights that have proved helpful to them in their work. He was a shining example for all to copy in his method of approach to babies and children. Surely he was one of the best loved men in Melbourne, for successive generations of children have from the first contact with him counted him as one of their dearest friends. It is known that he refused to be the bogey-man and the doctor to the same family, and that he placed a very high value on the love and unflinching confidence of his little patients; woe betide the foolish adult who thoughtlessly disturbed this relationship.

Our heartfelt sympathy is extended to his devoted widow, and to his brother, Dr. W. Atkinson Wood, and to his only

son, Dr. Ian Jeffreys Wood, who is already holding aloft the torch his father lighted.

Dr. E. Alan Mackay writes:

For more than half a century the quiet and gentle influence of Arthur Jeffreys Wood was a dominant factor in shaping the policy and promoting the development of the Melbourne Children's Hospital. The debt which the medical profession and the community owes to him is incalculable. He had in a rare degree the art of clinical teaching, and he used this talent freely for the benefit of others. This I first realized when I became a dresser at the Melbourne Hospital while he was on the resident medical staff. Between the visits of the honorary staff he would take students round to certain cases, point out the salient features and then direct attention to the less obvious signs which might be helpful in differential diagnosis. Then a reference to some text-book or to a recent article in a medical publication would indicate a course of reading and would show the student the value of training his powers of observation and deduction. This would be done in such a kindly and friendly manner, and with such a careful regard to the feelings of the patient, that no student could fail to benefit by the example.

For several years prior to Jeff. Wood's graduation, Dr. William Snowball had been building up a reputation as a specialist in the diseases of children, and was attracting to the hospital in Carlton a host of patients from all parts. Wood, who was very fond of children and who had a quite remarkable faculty of making friends with even the shyest and least tractable of them, frequently took week-end duty for the resident surgeon at the Children's Hospital and, working with Dr. Snowball, was irresistibly drawn towards the then new specialty of paediatrics. After a year at the Melbourne Hospital he was appointed as resident medical officer to the Children's Hospital. Holding that position for three years, he gained wide recognition for his clinical acumen and successful methods of treatment. Attendance at the Children's Hospital was not then compulsory, but Wood's handling of the wealth of clinical material in the out-patient department attracted many of the senior students and graduates, who realized the importance in private practice of a knowledge of the treatment of sick children. The rapid expansion of the hospital led to the appointment of an assistant resident, and first Frank Hobill Cole and afterwards Richard Rawdon Stawell filled that position. Here was a galaxy of brilliant young enthusiasts, guided and controlled by the mature and experienced William Snowball, a wise, kindly and witty counsellor, and by the meticulously careful Peter Bennie, who was then working out the mathematical principles of Thomas's splints and supervising their construction according to a scientific formula of his own. The resident surgeons presently became members of the honorary staff, and somewhat later, by a happy circumstance, there was added to their number a man who was destined to shed new lustre on the name of the Children's Hospital—Mr. Hamilton Russell, whose work on hernia brought world-wide fame to that institution.

It is fitting to recall Hamilton Russell's name here, as he and Jeffreys Wood and R. R. Stawell (afterwards Sir Richard) became close friends and gathered round them at the house at 19, Collins Street, where they made their home, a number of the then young enthusiasts who were working along similar lines. It was a coterie of cultured men of high purpose, and those who were fortunate enough to be included as guests at their very hospitable table would be sure to meet there men of similar calibre who were making their mark in other professional, educational or artistic callings. It was a pleasant association of men of ability, culture and natural graces, trained in the best traditions of their calling, who were devoting themselves to that calling. The community of interests of these three men was a great force in the progress of paediatrics in this city, and though the general hospitals presently drew two of them away, they had left a deep impression at the Children's. With the mention of those days memories come crowding back of so many things that then were new: the first copy of the *Archives of Pediatrics*, shown to me by Jeff. Wood, the first little cretin responding to treat-

ment with thyroid extract, the large, pale babies with swollen shins and bleeding gums miraculously cured with a few drinks of orange juice, the battle with the patent infant food proprietors, Dwyer's intubation tubes and antitoxin for membranous croup *et cetera*; they all sound commonplace now, but many a practitioner in town and country would not have known about them then but for the clinical classes which Jeff. Wood inaugurated. He founded the nursing school at the Children's Hospital, and his methods of training in observation and detail were as successful as were his clinical lectures to students. It is to be regretted that he wrote but little and was always diffident about reading papers at medical society meetings. It was his nature to avoid publicity and to shun anything in the nature of a public meeting; but his time was always freely given to committee work which helped the cause of sick children, and was freely used by the Children's Hospital Committee throughout the years when that institution was making its phenomenal progress. His manner was calm and unassertive, but his pronouncements were so sound and well considered that the committee of management set a great value on his advice on many difficult problems which from time to time arise in the conduct of such an institution.

He will be missed by many friends of all ages. He possessed in a singular degree the faculty of making lasting friends of the very young. It is a pleasant thing to look back on long years of friendship with such a man.

Dr. H. Douglas Stephens writes:

A prominent figure in the early history of paediatrics in Melbourne has passed away in the person of Dr. A. Jeffreys Wood at the age of seventy-six years. He was one of a small group of men who were particularly interested in the study of diseases of children, and, led by Dr. Snowball, pioneered the Children's Hospital through its early vicissitudes. In 1891, he and his friend, the late Sir Richard Stawell, visited America in search of medical experience. On his return, Dr. Wood demonstrated Dwyer's method of treating laryngeal diphtheria and performed the first intubation for this condition in Melbourne.

On joining the honorary medical staff of the Children's Hospital in 1892 he set up practice as a Collins Street specialist in children's diseases, and number 19, Collins Street, was well known in those days as the residence of three of Melbourne's most promising young doctors—Dr. A. Jeffreys Wood, Dr. Richard Rawdon Stawell and Dr. Hamilton Russell.

It was largely due to Dr. Wood's activities that a pure milk supply for infants was provided in Melbourne. Under the auspices of Lady Talbot, wife of the Governor of Victoria at the time, a committee was formed to formulate the conditions necessary for the production of a clean, fresh milk from tuberculin-tested cows, and conforming to certain other standards, especially in respect to type and numbers of bacteria. Dr. Wood's knowledge of milk standard in America and the perfection attained in that country were invaluable to the committee, through which was formed the Lady Talbot Institute.

As a teacher Dr. Wood will always be remembered and respected by his colleagues and students. Before a clinical school at the Children's Hospital was ever thought of, a small band of enthusiasts, including Dr. Wood, held voluntary classes there, at which I and many others were privileged to attend. In 1906, at a dinner to welcome Dr. E. Alan Mackay on his return to the honorary staff of the hospital after a period of illness, a committee was formed to inaugurate meetings for the study of diseases of children. The Melbourne Paediatric Society was the outcome of these activities, and at that time it was the only society of its kind in Australia. Dr. Wood was a foundation member, and even up till his death took a keen interest in the society.

Although he resigned from the activities of the staff of the hospital in 1921, some of Dr. Wood's aphorisms still linger in the memory of his colleagues. He insisted that the commonest cause of failure in diagnosis was due to neglect of examination of the urine microscopically.

Hunger, thirst, earache and intestinal colic were, in his opinion, more provocative of babies' crying at night than all the other causes put together.

In infant feeding Dr. Wood was always insistent that if the quality of the food was correct the infant should decide the quantity. It is of interest to recall that at one time he was an ardent supporter of Budin's method of whole milk feedings for even the youngest infants. The buffer action of lactic or other acids was unknown in those days. He always took a special interest in erythrodema or pink disease. In collaboration with Dr. Frank Hobill Cole, many cases of this disease were reported in 1918. In 1935, in association with his son, Dr. Ian Wood, an excellent report on the subject was submitted to the annual meeting of the British Medical Association, which was held in Australia for the first time. This was the last of his published work on diseases of children.

Throughout his life Jeffreys Wood displayed an active interest in amateur sport. In his younger days he was an excellent cricketer and tennis player. His enthusiasm for cricket was such that even as recently as the occasion of the last test match he followed the game from beginning to end and saw every ball bowled. In the early days of the present century, Jeffreys Wood, Richard Stawell, William Moore and Sir Thomas Fitzgerald (all now deceased) would foregather in the early morning on the tennis court at "Cliveden", then the residence of the late Janet Lady Clarke, and play a few sets of tennis before breakfast. I was privileged to act as substitute on many occasions, and I marvelled at the energy and activity displayed by the players before their day's work began. "Jeff" Wood, as he was affectionately known to those privileged to know him intimately, was always delighted in a round of golf. He played on the Royal Melbourne course for many years, and until he was abruptly stricken a few weeks ago, made a regular pilgrimage to Sandringham.

Those of his colleagues who knew him, and especially those who also had the privilege of serving under him, will respect the memory of a gifted paediatrician and will always feel honoured by his friendship.

Dr. Stewart W. Ferguson writes:

I first met the late Dr. Jeff. Wood in 1903, when I was appointed resident Medical Officer to the Children's Hospital. By that time the mantle of the late Dr. Snowball had definitely fallen on his shoulders. Since that time we have continued a long and uninterrupted friendship.

When I first commenced private practice in the same field as himself, he was the one person I can look back upon with the realization that I received more genuine help and encouragement from him than from anyone else. It was characteristic of him to help the younger man coming on until he was established, and then he looked round for another younger man to help.

For many years he was the big preeminent figure in the paediatric world of Victoria. His position at the Children's Hospital at one time was unique in that he occupied the position of senior physician and senior surgeon to in-patients and also physician and surgeon to out-patients. As regards his work, there are two things that stand out

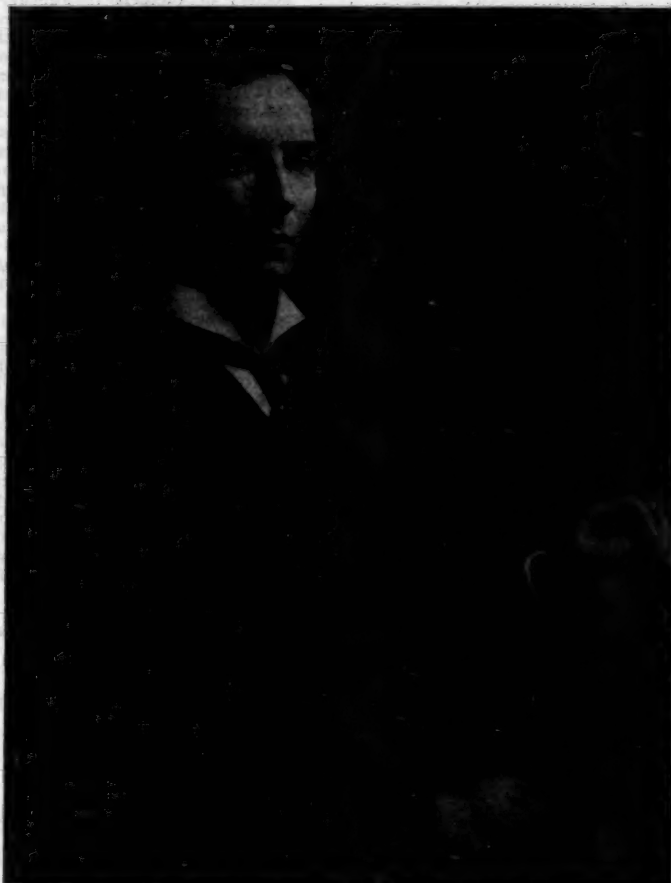
to my mind. Firstly, following Swift, of Adelaide, his early work on pink disease was such that he became a world-wide authority, and secondly, he pioneered the work in Victoria on congenital dislocation of the hip after Lorenz had published his observations.

The passing of Arthur Jeffreys Wood has left a gap which will be very hard to fill in the list of the truly kindly generous and really courteous medical gentlemen of this city. In the course of my friendship with him, extending over thirty-five years, I never heard an ill-word said against him. I know of no one in whose make-up envy, hatred and malice participated so little, or one who could more fittingly go to his grave with the epitaph: "Here lies an honest man."

Sir Alan Newton writes:

The death of Dr. A. Jeffreys Wood marks the passing of almost the last survivor of a band of great clinicians to whom we owe the prestige of the Melbourne Medical School as it exists today. By example and by precept, he

inspired successive generations of students to cultivate those qualities of accurate clinical observation and kindly common sense with which he was so abundantly endowed; a task made easier by the interest he displayed in the progress of all members of his classes, not only in their student days, but also in their subsequent careers. Those of us who were privileged to be his students can only hope that our affection and respect repaid him, in some degree, for all he did for us. Most of us can remember some special kindness from "Jeff" Wood. I, for example, recall with gratitude the fact that, in my student days, he allowed me to perform my first operation. The words of praise which he gave me when this ordeal was over, live much more vividly in my memory than the fact, realized later, that he had unobtrusively done most of the work. Dr. Wood was not only a great and inspiring clinician. He was a true leader of our profession, and in his work



Arthur Jeffreys Wood. (From a photograph taken in 1900.)

and his life steadfastly upheld its high traditions. Our sorrow at his death is therefore mitigated to some extent by our thankfulness that he lived among us. Though few of us can hope to possess in like measure those very human qualities which endeared him to everybody who knew him, let us strive, as best we may, to profit by the example which he has given us.

Dr. J. Newman Morris writes:

The people of Victoria owe a tribute of gratitude to a number of men who graduated from the medical school of the University of Melbourne during the eighties of last century, and very few of those men still survive. One of the most accomplished of that group was Arthur Jeffreys Wood, whose death we now so deeply mourn. His achievements in clinical and scientific medicine have been related. A study of his published papers and case records reveal that he showed the essential attributes of permanent success—scientific imagination and keen powers of observation. He had "the modern scientific mind which could weigh evidence and not go beyond it; and let the conclusions emerge naturally but firmly from the observations".

In 1895 Jeffreys Wood joined the Committee of the Medical Society of Victoria, and he was a regularly attending committeeman and councillor until he resigned from the Council of the Victorian Branch of the British Medical Association in 1921. As secretary in 1896, as co-editor of the *International Medical Journal*, and as president he played his part in executive duties with that thoroughness and attention which characterized all his activities. Much medical history was made during that long period of individual service. The medical profession was divided among its ranks and lacked unity, and no one played a larger part than Jeffreys Wood in achieving that degree of union which has happily obtained during the past twenty-five years in this State. He laboured "for the honour of the profession to continue in love and affection among ourselves". He has aptly been described as a "landmark" in medical practice, for he was one of those rare men who could teach, and he taught the men in general practice how to handle infants and how they should be fed. He was always the friend of his little patients—his consulting room always contained toys for them to play with. The first case records he published on intubation in laryngeal diphtheria contained references which reveal the kindly human interest in children which was so characteristic of him. The child was "not so bright", "the child very jolly", or "laughing and playing with toys"; and that was how he loved to see the children in his care.

His work on improvement of the milk supply of Melbourne should make his name remembered for all time; in that regard, as well as in other ways, he taught the public very much about the causes of infantile morbidity and mortality. That he taught the mothers how to care for their children is evident by the following letter published in *The Argus* a few days after his death:

Sir,—I wish I could express adequately the sadness that the mothers of Victoria must be feeling at the death of Dr. A. Jeffreys Wood. He has been friend and counsellor to so many mothers of the past and present generations, and has cheered so many anxious hearts, that I feel we mothers must wish to record our feeling of loss and of appreciation for all he has done for our children and ourselves. He has not only been a children's doctor and an understanding friend, but a wonderful teacher of the mothers in everything that would help us to bring up our children to be healthy men and women, with a fine broad outlook on life. We owe him a debt of gratitude and we bless and honour him; his work will live on.—Yours, &c.,

Toorak, April 16.

A MOTHER.

He never lost his interest in the welfare of the profession that he loved and adorned, and his long experience and wise counsel were always available to the end of his days.

A great man has slipped quietly away from us; few of his contemporaries remain, but there are yet many who began their professional lives under his wise and gentle

guidance and who have been greatly influenced by the great qualities of his personality; so will the influence of his life be carried on. All who knew him deeply mourn his loss and deeply sympathize with his widow and only son.

The following minute has been placed on record by the Council of the Victorian Branch of the British Medical Association:

The Council records its sorrow at the death of Dr. A. Jeffreys Wood, and the appreciation of the long and valuable services he rendered to the profession. Dr. Wood had a long and honourable career in the service of the profession. He joined the Medical Society of Victoria in February, 1886. In December, 1893, he was elected a member of the Committee. He was Secretary during 1894, 1895 and 1896, and President for the year 1905. His committee work included three years on the War Organization Committee (1916-1918) and one year on the Ethics Committee (1921). He prepared and delivered many interesting and extremely valuable addresses. By his unswerving devotion to the interests and tasks of his beloved profession and his quiet and honourable approach to problems requiring a solution, he set a high and shining example to those privileged to come under his inspiring influence. Giving always of his best, he rightly earned the respect and admiration of all with whom he came into contact. Council's deepest sympathy is extended to his wife and family.

Dr. W. Kent Hughes writes:

The late Dr. A. Jeffreys Wood has been for many years the outstanding paediatricist in Australia, and to him and to Hamilton Russell we owe the prestige of the Children's Hospital, Melbourne. The continuous indefatigable labour of Wood and the brilliance of Russell were a happy combination. Jeff. Wood, from the outset of his career, devoted himself to paediatrics and never swerved from his purpose, though through the latter years he practically gave up surgery. I never knew anyone in any walk of medicine who was so thoroughly versed in the literature of his subject, and no one was ever more ready to help an inquiring colleague. I can safely say that though my questions were always surgical I never failed to get help from Jeff. Wood, however rare or unusual the case. A charming companion, a generous colleague, and a wise physician—may his soul rest in peace.

HERBERT PERCIVAL BROWNELL.

We regret to announce the death of Dr. Herbert Percival Brownell, which occurred on April 26, 1937, at Melbourne, Victoria.

NOEL CHARLES KELEHER LANE.

We regret to announce the death of Dr. Noel Charles Keleher Lane, which occurred on April 29, 1937, at Brisbane, Queensland.

THOMAS ERNEST GREEN.

We regret to announce the death of Dr. Thomas Ernest Green, which occurred on April 24, 1937, at Brighton, Victoria.

ISOBEL MAY BROWN.

We regret to announce the death of Dr. Isobel May Brown, which occurred on April 23, 1937, at Darlinghurst, Sydney.

Correspondence.

MEDICINE AND THE SOCIAL ORDER.

SIR: May I be permitted to congratulate Dr. E. P. Dark on his inspiring article on "Medicine and the Social Order", which appeared on April 3 in THE MEDICAL JOURNAL OF AUSTRALIA.

There are two aspects of medicine, the narrow, which appertains to man as an individual, and the broad, which deals with man as a social animal. In the former our profession has a meritorious record of achievement, but few will deny its failure to tread the admittedly difficult track of social endeavour.

Although it is literally true that the progress of civilization is based on such practical considerations as nutrition, psychology, economic standards, birth control, and it is also true that no man is better fitted to deal with these subjects than medical men, yet we make no organized attempt either to make our voice heard or take practical steps to promote action in the political field. Here and there a doctor is sufficiently civic-minded to contest an election in the State or local government arena, but this is not enough. The hour has come for concerted action. The rank and file of our profession should be prepared to finance accredited candidates instead of allowing the lone patriot to shoulder the pecuniary losses involved. Our aim should be the presence of medical men in every parliament and city council—possibly more, but certainly no less. We should be cheerfully prepared to pay a levy. An extra couple of guineas a year would cause little hardship to the vast majority of our profession and it would suffice to create an adequate fighting fund.

Let us hope that the practical implications of Dr. Dark's article will receive recognition and may act as a spur to the British Medical Association to extend its activities into the political arena or may create interest in the formation of an independent medical political body.

Robert Louis Stevenson once wrote that "politics is perhaps the only profession for which no preparation is thought necessary". Surely the time is overdue for our great profession to play its part in removing the stigma.

Yours, etc.,

JOHN BOSTOCK.

Wickham Terrace,
Brisbane,
Queensland,
April 30, 1937.

Post-Graduate Work.

LECTURES IN MELBOURNE.

THE Melbourne Permanent Post-Graduate Committee announces that two lectures will be given at the Medical Society Hall, 426, Albert Street, East Melbourne, by Professor J. C. Meakins, M.D., LL.D. (Edinburgh), F.R.C.P. (Canada), F.R.C.S., F.R.C.P. (Edinburgh), F.R.C.P. (London); Physician-in-Chief of the Royal Victoria Hospital, Montreal; Director of the Department of Medicine, McGill University and McGill University Clinic; late Christison Professor of Therapeutics, University of Edinburgh.

Monday, May 10, 1937, at 8.15 p.m.—"Circulatory Collapse: Causes and Cure, with Special Reference to Peripheral Types of Failure."

Thursday, May 13, 1937, at 8.15 p.m.—"Systemic Significance of Renal Insufficiency."

Inclusive fee, 30s.; residents at hospitals, 15s.

Notice of intention to be present at the above lectures, together with the fee, should be forwarded to the Honorary Secretary, Melbourne Permanent Post-Graduate Committee, 33, Collins Street, Melbourne, C.I.

Professor Meakins is the author of the most recent textbook of medicine, which, because of its outstanding excellence, has been recommended for the use of candidates for the degree of M.D. in Sydney and Melbourne.

The following courses of lectures and demonstrations have been arranged by the Melbourne Permanent Post-Graduate Committee:

A series of late afternoon lectures and demonstrations will be given at 4.30 p.m. as follows:

At Walter and Eliza Hall Institute, Melbourne Hospital.

Tuesday, May 11.—"The Technique of Blood Transfusion, with Special Reference to the Continuous Drip Method in the Treatment of Hematemesis", Dr. I. J. Wood.

Friday, May 14.—"The Continuous Intravenous Administration of Glucose-Saline Solution, with Special Reference to the Treatment of Paralytic Ileus", Dr. I. J. Wood.

At the Medical Society Hall.

Thursday, June 10.—Clinico-pathological demonstration illustrating changes in the visual fields produced by neoplasms, Dr. E. G. Robertson.

Thursday, June 17.—Clinico-pathological demonstration of tumours in the posterior cranial fossa, Dr. E. G. Robertson.

Thursday, July 1.—"Dietetics and Diarrhoea in Infancy", Dr. Stewart Ferguson.

Thursday, July 8.—"Dietetics, with Special Reference to the Use of Diet in Obesity and Arteriosclerosis", Dr. E. C. Cooper.

Thursday, July 15.—"Some Aspects of the Management and Treatment of Diabetes", Dr. E. Downie.

Thursday, July 29.—"Treatment of Infections of the Hand", Dr. A. E. Coates.

Thursday, August 5.—"Modern Treatment of Urinary and Renal Infection", Dr. H. Mortensen.

Thursday, August 12.—"Cutaneous Infections, with Special Reference to Bolls", Dr. J. Ivan Connor.

A fee of 5s. will be charged for attendance at each lecture. No notice of intention to be present is required.

Proceedings of the Australian Medical Boards.

NEW SOUTH WALES.

THE undermentioned have been registered, pursuant to the provisions of the Medical Act, 1912 and 1915, of New South Wales, as duly qualified medical practitioners:

Bonar, Francis Stephen, M.B., B.S., 1937 (Univ. Sydney), Charles Street, East Maitland.

Moore, Henry Dendy, M.B., B.S., 1937 (Univ. Sydney), 6, May Street, Hornsby.

Alexander, John Murray, M.B., B.S., 1937 (Univ. Sydney), 4, Tyron Avenue, Wollstonecraft.

Gill, Robert Chalmers, M.B., B.S., 1937 (Univ. Sydney), 34, Greengate Road, Killara.

Marsh, Harold Geoffrey, M.B., B.S., 1937 (Univ. Sydney), Belgrave Street, Kempsey.

Ryan, William Patrick, M.B., 1937 (Univ. Sydney), Saint Vincent's Hospital, Sydney.

Thomas, James Frederick Noel, M.B., B.S., 1937 (Univ. Sydney), Berry Street, North Sydney.

White, Weeks, M.B., B.S., 1937 (Univ. Sydney), 164, Livingstone Road, Marrickville.

Merrington, Harvard Northcroft, M.B., Ch.B., 1935 (Univ. New Zealand), c/o Dr. C. E. North, Lawson.

Books Received.

EXPERIMENTAL PHYSIOLOGY, by G. H. Bell, M.B., B.Sc.; 1937. Glasgow: John Smith and Son Limited. Medium 6mo, pp. 68, with illustrations. Price: 4s. 6d. net.

CATECHISM SERIES: BOTANY. Part I: Fourth Edition; 1937. Edinburgh: E. & S. Livingstone. Crown 8vo, pp. 76, with illustrations. Price: 1s. 6d. net.

LATENT SYPHILIS AND THE AUTONOMIC NERVOUS SYSTEM, by G. Evans, M.A., D.M., F.R.C.S., D.O.M.S.; Second Edition; 1937. Bristol: John Wright and Sons Limited. Demy 8vo, pp. 168, with illustrations. Price: 7s. 6d. net.

WILLIAMS OBSTETRICS: A TEXTBOOK FOR THE USE OF STUDENTS AND PRACTITIONERS, by J. W. Williams, revised by H. J. Stander, M.D., F.A.C.S.; Seventh Edition; 1936. New York: D. Appleton-Century Company Incorporated; Australia: The Blyth Publishing Company Limited. Royal 8vo, pp. 1278, with illustrations. Price: 66s. net.

Diary for the Month.

- MAY 11.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
 MAY 14.—Queensland Branch, B.M.A.: Council.
 MAY 18.—New South Wales Branch, B.M.A.: Ethics Committee.
 MAY 19.—Western Australian Branch, B.M.A.: Branch.
 MAY 20.—New South Wales Branch, B.M.A.: Clinical Meeting.
 MAY 25.—New South Wales Branch, B.M.A.: Medical Politics Committee.
 MAY 26.—Victorian Branch, B.M.A.: Council.
 MAY 27.—New South Wales Branch, B.M.A.: Branch.
 MAY 27.—South Australian Branch, B.M.A.: Branch.
 MAY 28.—Queensland Branch, B.M.A.: Council.
 JUNE 1.—New South Wales Branch, B.M.A.: Organization and Science Committee.
 JUNE 2.—Western Australian Branch, B.M.A.: Council.
 JUNE 2.—Victorian Branch, B.M.A.: Branch.
 JUNE 3.—South Australian Branch, B.M.A.: Council.
 JUNE 8.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
 JUNE 11.—Queensland Branch, B.M.A.: Council.
 JUNE 15.—New South Wales Branch, B.M.A.: Ethics Committee.

Medical Appointments.

Dr. M. Schneider has been appointed Honorary Ophthalmologist at the Adelaide Hospital, Adelaide, South Australia.

Dr. A. S. Anderson has been appointed Medical Referee at Melbourne, pursuant to the provisions of the *Workers' Compensation Act, 1928*, of Victoria.

Dr. A. E. Coates has been appointed a Member of the Dental Board of Victoria, under the provisions of Section 38 of the *Medical Act, 1928*, of Victoria.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser", pages xviii to xx.

ANTI-TUBERCULOSIS ASSOCIATION OF NEW SOUTH WALES: Honorary Physician.

DEPARTMENT OF PUBLIC HEALTH, PERTH, WESTERN AUSTRALIA: Resident Medical Officer.

INSTITUTE OF MEDICAL SCIENCE, ADELAIDE, SOUTH AUSTRALIA: Research Pathologist.

PUBLIC SERVICE BOARD, SYDNEY, NEW SOUTH WALES: Resident Medical Officer, Director of Maternal and Baby Welfare.

ROYAL HOSPITAL FOR WOMEN, PADDINGTON, NEW SOUTH WALES: Resident Medical Officers.

THE WOMEN'S HOSPITAL, CROWN STREET, SYDNEY, NEW SOUTH WALES: Resident Medical Officers.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCHES.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 135, Macquarie Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmalm United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company Limited. Phoenix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association, Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17.	Brisbane Associate Friendly Societies' Medical Institute. Proserpine District Hospital. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY Hospital are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.
SOUTH AUSTRALIAN: Secretary, 178, North Terrace, Adelaide.	All Lodge appointments in South Australia. All contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, 205, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognise any claim arising out of non-receipt of journals unless such a notification is received within one month.

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and book-sellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rates are £3 for Australia and £2 5s. abroad per annum payable in advance.